1. Record Nr. UNINA9910299784003321

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Titolo	An Introduction to Queueing Theory : Modeling and Analysis in Applications / / by U. Narayan Bhat
Pubbl/distr/stampa	Boston, MA : , : Birkhäuser Boston : , : Imprint : Birkhäuser, , 2015
ISBN	0-8176-8421-2
Edizione	[2nd ed. 2015.]
Descrizione fisica	1 online resource (XIV, 339 p. 18 illus., 6 illus. in color.)
Collana	Statistics for Industry and Technology, , 2364-6241
Disciplina	519.8/2
Soggetti	Statistics Probabilities Mathematical models Sequences (Mathematics) Industrial engineering Production engineering Statistical Theory and Methods Probability Theory and Stochastic Processes Mathematical Modeling and Industrial Mathematics Sequences, Series, Summability Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences Industrial and Production Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- System Element Models -- Basic Concepts in Stochastic Processes -- Simple Markovian Queueing Systems -- Imbedded Markov Chain Models for M/G/1 and G/M/1 Queues -- Extended Markov and Renewal Models -- Queueing Networks -- Matrix-Analytic Queueing Models -- The General Queue G/G/1 and Approximations -- Statistical Inference for Queueing Models -- Decision Problems in Queueing Theory -- Queueing Theory Applications in the Analysis of Manufacturing Systems -- Queueing Theory Applications in the Analysis of Computer and Communication Systems -- Simulating Queueing Systems.

Sommario/riassunto

This introductory textbook is designed for a one-semester course on queueing theory that does not require a course on stochastic processes as a prerequisite. By integrating the necessary background on stochastic processes with the analysis of models, the work provides a sound foundational introduction to the modeling and analysis of queueing systems for a wide interdisciplinary audience of students in mathematics, statistics, and applied disciplines such as computer science, operations research, and engineering. This edition includes additional topics in methodology and applications. Key features: • An introductory chapter including a historical account of the growth of queueing theory in more than 100 years. • A modeling-based approach with emphasis on identification of models. • Rigorous treatment of the foundations of basic models commonly used in applications with appropriate references for advanced topics. • Applications in manufacturing and, computer and communication systems. • A chapter on matrix-analytic method as an alternative to the traditional methods of analysis of queueing systems. • A comprehensive treatment of statistical inference for queueing systems. • A chapter on the simulation of queueing systems. The second edition of An Introduction of Queueing Theory may be used as a textbook by first-year graduate students in fields such as computer science, operations research, industrial and systems engineering, as well as related fields such as manufacturing and communications engineering. Upper-level undergraduate students in mathematics, statistics, and engineering may also use the book in an introductory course on queueing theory. With its rigorous coverage of basic material and extensive bibliography of the queueing literature, the work may also be useful to applied scientists and practitioners as a self-study reference for applications and further research. Review of the first edition: "This book is precisely what the title says it is. It is aimed at beginning graduate students and advanced undergraduate students in industrial engineering, electrical engineering, computer science, operations research, management science, mathematics and statistics...it covers a surprisingly large number of topics, including some that do not get much attention in other, much larger books...At the end of many chapters is a welcome Remarks section...(that) provide further references...Is there a need for another book on queueing theory? For this book - yes, there is."- American Statistical Association and the American Society for Quality. Review appeared in TECHNOMETRICS, Feb. 2010. VOL. 52.