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Autore	Ng Chee Hock
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System -- 5.2 The Residual Service Time Approach -- 5.3 M/G/1 Non-preemptive Priority Queueing -- 5.4 Priority Queueing Systems -- 5.5 The G/M/1 Queueing System -- 6. Open Queueing Networks -- 6.1. Markovian Queries in Tandem -- 6.2. Applications of Tandem Queues in Data Networks -- 6.3. Jackson Queueing Networks -- Problems -- 7. Closed Queueing Networks -- 7.1. Jackson Closed Queueing Networks -- 7.2. Steady-state Probability Distribution -- 7.3. Convolution Algorithm -- 7.4. Performance Measures -- 7.5. Mean Value Analysis -- 7.6. Application of Closed Queueing Networks -- Problems -- 8. Markov-Modulated Arrival Process -- 8.1. Markov-modulated Poisson Process (MMPP) -- 8.2. Markov-modulated Bernoulli Process -- 8.3. Markov-modulated Fluid Flow -- 8.4. Network Calculus -- 9. Flow and Congestion Control -- 9.1. Introduction -- 9.2. Quality of Service. 9.3. Analysis of Sliding Window Flow Control Mechanisms -- 9.4. Rate Based Adaptive Congestion Control -- References -- Index.

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## Sommario/riassunto

Queueing analysis is a vital tool used in the evaluation of system performance. Applications of queueing analysis cover a wide spectrum from bank automated teller machines to transportation and communications and data networks. Fully revised, this second edition of a popular book contains the significant addition of a new chapter on Flow & Congestion control and a section on Network Calculus amongst other new material. An introductory text, Queueing Modelling Fundamentals focuses on queueing modelling techniques and applications of data networks, examining the underlying principles of isolated queueing systems. This book introduces the complex queueing theory in simple language/proofs to enable the reader to quickly pick up an overview to queueing theory without utilizing the diverse necessary mathematical tools. It incorporates a rich set of worked examples on its applications to communication networks. Features Include: . Fully revised and updated edition with significant new chapter on Flow and Congestion Control as-well as a new section on Network Calculus . A comprehensive text which highlights both the theoretical models and their applications through a rich set of worked examples, examples of applications to data networks and performance curves . Provides an insight into the underlying queueing principles and features step-by-step derivation of queueing results . Written by experienced Professors in the field Queueing Modelling Fundamentals is an introductory text for undergraduate or entry-level post-graduate students who are taking courses on network performance analysis as well as those practicing network administrators as well as operations. The detailed step-by-step derivation of queueing results also makes it an excellent text for professional engineers.

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