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1.4.4.1. Simulating random events
1.4.4.2. Simulating discrete random variables; 1.4.4.3. Simulating continuous random variables; 1.4.5. Discrete-event systems; 1.4.5.1. Key aspects of simulation; 1.5. Decomposition method; 1.5.1. Presentation; 1.5.2. Details of the method; Chapter 2. Optimization; 2.1. Introduction; 2.2. Polynomial problems and NP-hard problems; 2.2.1. The complexity of an algorithm; 2.2.2. Example of calculating the complexity of an algorithm; 2.2.3. Some definitions; 2.2.3.1. Polynomial-time algorithms; 2.2.3.2. Pseudo-polynomial-time algorithms
2.2.3.3. Exponential-time algorithms
2.2.4. Complexity of a problem; 2.2.4.1. Polynomial-time problems; 2.2.4.2. NP-hard problems; 2.3. Exact methods; 2.3.1. Mathematical programming; 2.3.2. Dynamic programming; 2.3.3. Branch and bound algorithm; 2.4. Approximate methods; 2.4.1. Genetic algorithms; 2.4.1.1. General principles; 2.4.1.2. Encoding the solutions; 2.4.1.3. Crossover operators; 2.4.1.4. Mutation operators; 2.4.1.5. Constructing the population in the next generation; 2.4.1.6. Stopping condition; 2.4.2. Ant colonies; 2.4.2.1. General principle
2.4.2.2. Management of pheromones: example of the traveling salesman problem

Sommario/riassunto

This book aims to help engineers, Masters students and young researchers to understand and gain a general knowledge of logistic systems optimization problems and techniques, such as system design, layout, stock management, quality management, lot-sizing or scheduling. It summarizes the evaluation and optimization methods used to solve the most frequent problems. In particular, the authors also emphasize some recent and interesting scientific developments, as well as presenting some industrial applications and some solved instances from real-life cases. Performance evaluation tools (Pet

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Sommario/riassunto	<p>Polymers have infiltrated almost every aspect of modern technology, as they have wide applications ranging from building insulation and firefighter uniforms to the Boeing 787 Dreamliner aircraft and electronics packaging. However, common polymers are flammable. Inflammability and thermal insulation properties in polymers are important for specific applications. This book discusses recent advances in developing eco-friendly, flame-retardant, and thermally insulative polymer-based materials. It not only focuses on developments of high-performance flame retardants, but also examines flame retardant behaviors in polymers. Eco-friendly polymers with superior flame retardancy, extraordinary thermal insulation, and excellent mechanical strength will provide new opportunities for existing and future applications.</p>