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Part 3. Production Pans -- Chapter 13. Production Planning and Scheduling of Flexible Manufacturing Plant -- Chapter 14. Parallel Machine Scheduling Problem -- Chapter 15. Cloud-Edge Collaborative Manufacturing Task Scheduling -- Part 4. Logistics And Supply Chain -- Chapter 16. Bees Traplining Metaphors for Vehicle Routing -- Chapter 17. Supply Chain Design -- Part 5. Remanufacturing -- Chapter 18. Robotic Disassembly Planning -- Chapter 19. Multi-objective Optimisation of Robotic Disassembly Plans -- Chapter 20. Task Optimisation for a Modern Cloud Remanufacturing System -- Chapter 21. Prediction of Engine Remaining Useful Life.

Sommario/riassunto

This book is the first work dedicated to the Bees Algorithm. Following a gentle introduction to the main ideas underpinning the algorithm, the book presents recent results and developments relating to the algorithm and its application to optimisation problems in production and manufacturing. With the advent of the Fourth Industrial Revolution, production and manufacturing processes and systems have become more complex. To obtain the best performance from them requires efficient and effective optimisation techniques that do not depend on the availability of process or system models. Such models are usually either not obtainable or mathematically intractable due to the high degrees of nonlinearities and uncertainties in the processes and systems to be represented. The Bees Algorithm is a powerful swarm-based intelligent optimisation metaheuristic inspired by the foraging behaviour of honeybees. The algorithm is conceptually elegant and extremely easy to apply. All it needs to solve an optimisation problem is a means to evaluate the quality of potential solutions. This book demonstrates the simplicity, effectiveness and versatility of the algorithm and encourages its further adoption by engineers and researchers across the world to realise smart and sustainable manufacturing and production in the age of Industry 4.0 and beyond. .