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Titolo	Quantitative Analysis and Optimal Control of Energy Efficiency in Discrete Manufacturing System [[electronic resource] /] / by Yan Wang, Cheng-Lin Liu, Zhi-Cheng Ji
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ISBN	981-15-4462-X
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Descrizione fisica	1 online resource (291 pages)
Disciplina	333.7965
Soggetti	System theory Manufactures Energy policy Energy and state Mathematical optimization Systems Theory, Control Manufacturing, Machines, Tools, Processes Energy Policy, Economics and Management Optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Quantitative analysis of real-time access to energy consumption information -- Energy consumption integration model for discrete manufacturing systems -- Construction of energy efficiency quantitative index system for discrete manufacturing system -- Combined energy efficiency quantitative analysis based on rough Set and analytic hierarchy process -- Energy efficiency quantitative analysis based on principal component analysis -- Design and development of quantitative analysis systems -- Energy saving optimization control of single machine equipment -- Integrated Energy Efficiency Optimization Control Based on RWA-MOPSO -- Production energy efficiency optimization control based on teaching and learning algorithm.
Sommario/riassunto	This book provides energy efficiency quantitative analysis and optimal methods for discrete manufacturing systems from the perspective of

global optimization. In order to analyze and optimize energy efficiency for discrete manufacturing systems, it uses real-time access to energy consumption information and models of the energy consumption, and constructs an energy efficiency quantitative index system. Based on the rough set and analytic hierarchy process, it also proposes a principal component quantitative analysis and a combined energy efficiency quantitative analysis. In turn, the book addresses the design and development of quantitative analysis systems. To save energy consumption on the basis of energy efficiency analysis, it presents several optimal control strategies, including one for single-machine equipment, an integrated approach based on RWA-MOPSO, and one for production energy efficiency based on a teaching and learning optimal algorithm. Given its scope, the book offers a valuable guide for students, teachers, engineers and researchers in the field of discrete manufacturing systems.