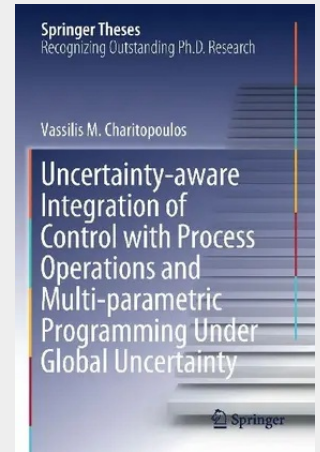


Uncertainty-aware Integration of Control with Process Operations and Multi-parametric Programming Under Global Uncertainty

This book introduces models and methodologies that can be employed towards making the Industry 4.0 vision a reality within the process industries, and at the same time investigates the impact of uncertainties in such highly integrated settings. Advances in computing power along with the widespread availability of data have led process industries to consider a new paradigm for automated and more efficient operations. The book presents a theoretically proven optimal solution to multi-parametric linear and mixed-integer linear programs and efficient solutions to problems such as process scheduling and design under global uncertainty. It also proposes a systematic framework for the uncertainty-aware integration of planning, scheduling and control, based on the judicious coupling of reactive and proactive methods. Using these developments, the book demonstrates how the integration of different decision-making layers and their simultaneous optimisation can enhance industrial process operations and their economic resilience in the face of uncertainty.

This book introduces models and methodologies that can be employed towards making the Industry 4.0 vision a reality within the process industries, and at the same time investigates the impact of uncertainties in such highly integrated settings. Advances in computing power along with the widespread availability of data have led process industries to consider a new paradigm for automated and more efficient operations. The book presents a theoretically proven optimal solution to multi-parametric linear and mixed-integer linear programs and efficient solutions to problems such as process scheduling and design under global uncertainty. It also proposes a systematic framework for the uncertainty-aware integration of planning, scheduling and control, based on the judicious coupling of reactive and proactive methods. Using these developments, the book demonstrates how the integration of different decision-making layers and their simultaneous optimisation can enhance industrial process operations and their economic resilience in the face of uncertainty.



106,99 €
99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030381394
Medium: Buch
ISBN: 978-3-030-38139-4
Verlag: Palgrave Macmillan
Erscheinungstermin: 05.02.2021
Sprache(n): Englisch
Auflage: 1. Auflage 2020
Serie: Springer Theses
Produktform: Kartoniert
Gewicht: 458 g
Seiten: 266
Format (B x H): 155 x 235 mm

