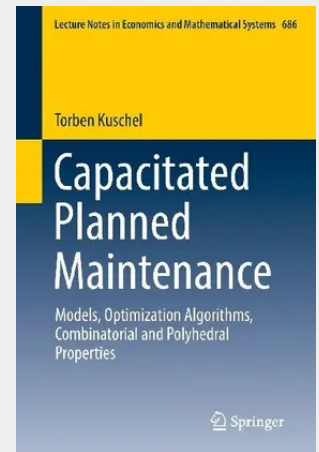


Capacitated Planned Maintenance

This book examines the problem of maintenance planning and scheduling in industrial production systems. It presents two practically relevant, deterministic mathematical models: the capacitated planned maintenance problem (CPMP) and the weighted uncapacitated planned maintenance problem (WUPMP). It introduces specific optimization algorithms such as construction heuristics, Lagrangean and tabu search metaheuristics. A problem independent hybrid approach links and alternates between two Lagrangean relaxations. It also analyzes the solvability with respect to the computational complexity of several problem classes, polyhedral properties and lower bounds. Computational studies demonstrate the performance of the heuristics, lower bounds, subgradients obtained from heuristics and the quality of dual information. This unique book includes implementation details and an introduction to the necessary theory making it suitable for upper undergraduate students.

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