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Soft Computing Applications for Advancements in Power Systems

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This book discusses real applications of soft computing (SC) in power systems. These SC techniques, inspired by the human mind and biological behavior, have proven to be excellent tools to overcome the challenges faced in power systems and related areas. The techniques are robust and provide low-cost solutions while also offering an effective solution for studying and modeling the behavior of renewable energy generation, operation of grid-connected renewable energy systems, and sustainable decision-making among alternatives. The tolerance of SC techniques to imprecision, uncertainty, partial truth, and approximation makes them highly useful alternatives to conventional techniques.

The rapid growth in SC techniques plays an important role in powerful representation, modeling paradigms and optimization mechanisms for solving power system issues such as power quality, reactive power control, oscillation and stability problems, renewable energy resource evaluation, design of energy efficiency systems, economic load dispatch problems or very different energy system applications in smart grids.

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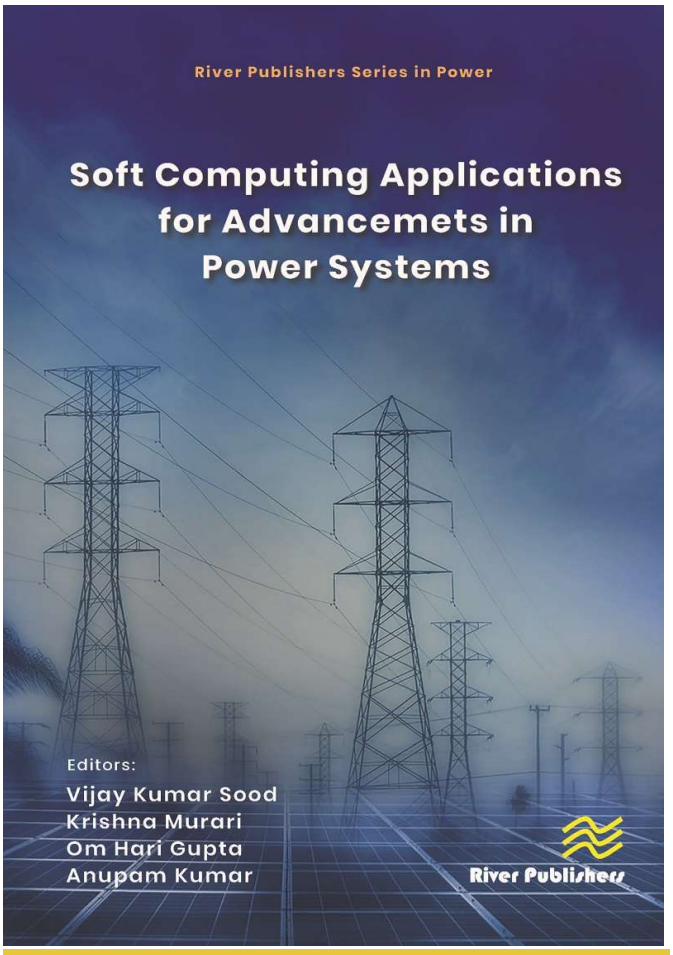

River Publishers Series in Power

ISBN: 9788770041416
e-ISBN: 9788770041119
Available From: December 2024
Price: $ 140.00

KEYWORDS:
Optimization, HVDC transmission, load flow, energy management systems, cyber-attacks, information security, smart grid, information and communication technology

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