River Publishers

# Advanced Mathematical Techniques in Science and Engineering

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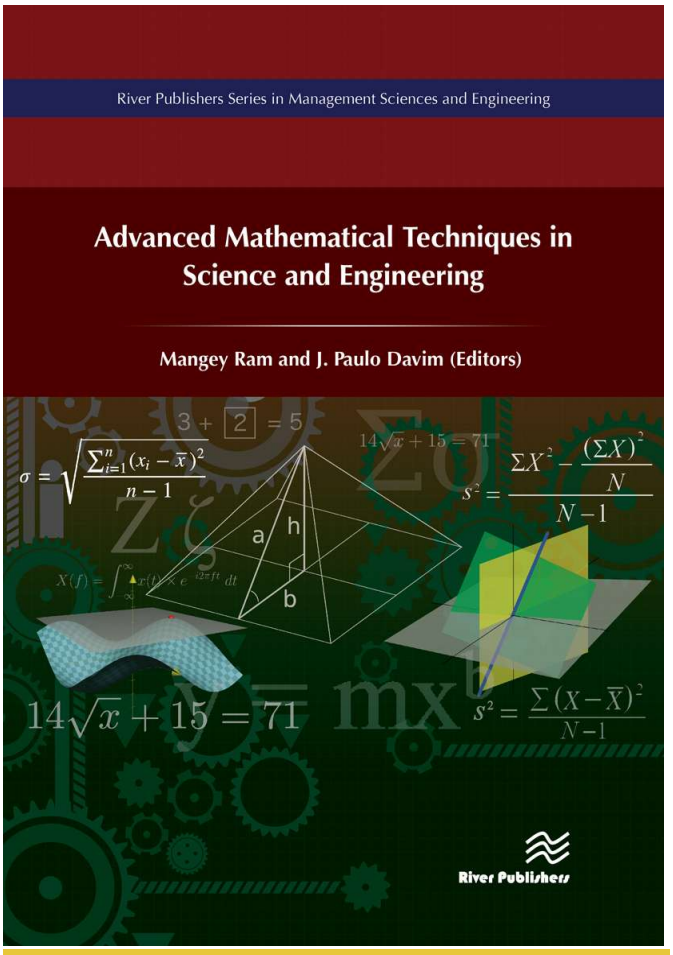
In recent years, mathematical techniques applied to novel disciplines within the science and engineering have experienced extraordinary growth. *Advanced Mathematical Techniques in Science and Engineering* focusses on a detailed range of mathematics applied within various fields of science and engineering for different tasks. Topics of focus include:

- Analysis of Consensus-Building Time in Social Groups
- Modeling of intersystem accidents in critical infrastructure systems
- Stochastic approaches to analysis and modeling of multi-sources and big data
- Performance evaluation of computational DoS attack on access point in Wireless LANs
- Ranking methods for decision-making under uncertainty
- Understanding time delay based Modeling & Diffusion of technological products
- Role of soft computing in science and engineering
- Complex system reliability analysis and optimization
- Tree growth models in forest ecosystems modelling

This research book can be used as a reference for students in a final year undergraduate engineering course, such as mechanical, mechatronics, industrial, computer science, information technology, etc. Furthermore, the book can serve as a valuable reference for academics, engineers and researchers in these and related subject areas.




## River Publishers Series in Management Sciences and Engineering

**ISBN:** 9788793609341
**e-ISBN:** 9788793609334
**Available From:** January 2018
**Price:** € 90.00  $ 120.00

**KEYWORDS:**
Social groups, technical committees for standardization, consensus, regular Markov chains, cellular automaton model, time to attain consensus, critical infrastructure systems, intersystem accidents, Stochastic algorithms, big data, satellite observations, social dynamics, security, crisis control, WLAN security, denial of service (DoS), computational DoS, flooding DoS, lightweight authentication, computation algorithm, ranking methods, innovation diffusion process, infinite server queuing approach, soft computing, complex bridge system, supplementary variable technique, reliability optimization, particle swarm optimization, multi-objective optimization.

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