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Titolo	Fourier, Laplace, and the Tangled Love Affair with Transforms : The Art of Signal Synthesis and Analysis / / by Sofen Kumar Jena
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Descrizione fisica	1 online resource (567 pages)
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Soggetti	Signal processing Telecommunication Engineering mathematics Mathematical analysis Digital and Analog Signal Processing Communications Engineering, Networks Engineering Mathematics Integral Transforms and Operational Calculus
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Historical Development of The Subject -- Signals & Systems -- Fourier Series -- Fourier Analysis -- Fourier Transforms of Generalized Functions -- The Laplace Transform -- Discrete Fourier Transform -- Convolution, Cross-correlation & Stochastic Analysis -- Linear Systems -- Z Transform -- Higher Dimensional Fourier Analysis -- Fourier Analysis for The Solution of Differential and Integral -- Equations -- Conclusion.
Sommario/riassunto	Unlock the intricate language of signals and systems with this in-depth exploration of Fourier and Laplace transforms. Designed for advanced undergraduates, graduate students, and professionals in engineering, physics, and applied mathematics, this book unravels the foundations of signal processing with a rigorous yet engaging approach. Beginning with the fundamentals and building to advanced topics, each chapter guides you through the Fourier series, Fourier, and Laplace transform

and into the realms of discrete Fourier and Z transforms, multi-dimensional analysis, and applications of the Fourier Transform in solving PDE, ODE, and Integral equations. The text brings mathematical theory to life through real-world applications in signal synthesis, systems engineering, and differential equations, making complex topics accessible and inspiring. With its unique blend of historical insights, practical applications, and intuitive explanations, this book offers a comprehensive yet approachable journey into the world of transforms. Whether you're a student building your foundation or a professional seeking to deepen your expertise, this book invites you to discover the elegance and utility of transforms in a way that bridges theory with the demands of modern engineering and science.
