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Titolo	An Electronics Engineer's Notebook : Projects, Simulations, Programming... and Some Riddles // by Orhan Özhan
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ISBN	3-031-95228-6
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Descrizione fisica	1 online resource (394 pages)
Disciplina	621.3
Soggetti	Electrical engineering Telecommunication Electronic circuits Electrical and Electronic Engineering Communications Engineering, Networks Electronic Circuits and Systems
Lingua di pubblicazione	Inglese
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Nota di contenuto	Introduction -- The Enigmatic MOS Channel -- A Linear Amplifier with MOSFET -- MOS Drain Current Surfaces -- MOSFET-Based Voltage-Controlled Amplifier -- Happy Delay -- Conservation of Energy or Charge? -- II SIMULATIONS -- Mind Your Simulations -- Biomedical Project Development Simulations -- Saturating Core Inductor -- Software 555 -- A Successive Approximation Register ADC -- FM and PM in Discrete Time -- Randomness -- III PROJECTS -- Reading Cassette Data Saved by a CASIO FX-702P Programmable Calculator -- DTMF Pager -- Digital Oscillator with myRIO -- DTMF Dialer with LabVIEW -- Spectrum Analysis on an Oscilloscope -- Rössler Attractor -- Barcode Reader -- IV MATH -- DeMorgan's Theorem -- Lure of the Complex Numbers -- Backward Rotating Wheels -- Great Circle and Heading -- Land Area -- Sudoku Generator -- Conclusion.
Sommario/riassunto	This book features a compilation of applicable and insightful engineering notes extracted from the author's multi-decade career in industry and academia. The book includes a plethora of modern engineering tools, including simulators and platforms like Matlab and LabVIEW TM that have been utilized to support the topics. The book is

organized into four parts: Riddles, Simulations, Projects, and Math. The Riddles include puzzling issues encountered in the basic concepts and their various solutions. The Simulations section presents examples of challenging simulations, such as an ECG telemetry system, a software timer IC, and a random number generator. The section also addresses the weak points of simulators that must be considered. The Projects part comprises hardware and software projects from real life, including a DTMF pager and a barcode reader. The Math part aims to underline the importance of mathematics in engineering. For example, complex numbers are employed to show how to generate rotating magnetic fields and explain the backward-rotating wheels of carts in movies. A project exploiting vector algebra calculates the distance and heading between two points on the earth. The part is concluded with a Sudoku generator. This toolbox of solutions is intended for researchers, academics, students and professionals in electrical engineering. Provides a toolbox of solutions for every day issues faced by electrical engineers; Includes solutions in electronic, embedded, simulation, and software projects; Features circuit files, LabVIEW VI files, Matlab m-files, SPICE files and C codes.
