

Contents

Preface.....	xi
Acknowledgments	xiii
Editorial Board	xv
Editors.....	xvii
Contributors	xxi

PART I Circuits and Signals

1 DC and Transient Circuit Analysis	1-1
<i>Carlotta A. Berry and Deborah J. Walter</i>	
2 AC Circuit Analysis.....	2-1
<i>Carlotta A. Berry and Deborah J. Walter</i>	
3 Computational Methods in Node and Loop Analyses.....	3-1
<i>Stephen M. Haddock and J. David Irwin</i>	
4 Transistor Operation and Modeling.....	4-1
<i>Tina Hudson</i>	
5 Application of Operational Amplifiers	5-1
<i>Carlotta A. Berry and Deborah J. Walter</i>	
6 Frequency Response and Bode Diagrams.....	6-1
<i>Thomas F. Schubert, Jr. and Ernest M. Kim</i>	
7 Laplace Transforms	7-1
<i>Dalton S. Nelson</i>	

PART II Devices

8 Semiconductor Diode.....	8-1
<i>Bogdan M. Wilamowski</i>	
9 Bipolar Junction Transistor	9-1
<i>Bogdan M. Wilamowski and Guofu Niu</i>	

10	Field Effect Transistors	10-1
	<i>Bogdan M. Wilamowski and J. David Irwin</i>	
11	Noise in Semiconductor Devices	11-1
	<i>Alicja Konczakowska and Bogdan M. Wilamowski</i>	
12	Physical Phenomena Used in Sensors.....	12-1
	<i>Tiantian Xie and Bogdan M. Wilamowski</i>	
13	MEMS Devices	13-1
	<i>José M. Quero, Antonio Luque, Luis Castañer, Angel Rodríguez, Adrian Ionescu, Montserrat Fernández-Bolaños, Lorenzo Faraone, and John M. Dell</i>	
14	MEMS Technologies.....	14-1
	<i>Antonio Luque, José M. Quero, and Carles Cané</i>	
15	Applications of MEMS	15-1
	<i>Antonio Luque, José M. Quero, Robert Lempkowski, and Francisco Ibáñez</i>	
16	Transistors in Switching Circuits	16-1
	<i>Tina Hudson</i>	
17	Transistors in Amplifier Circuits	17-1
	<i>Tina Hudson</i>	
18	A Simplistic Approach to the Analysis of Transistor Amplifiers.....	18-1
	<i>Bogdan M. Wilamowski and J. David Irwin</i>	
19	Analog and Digital VLSI Design	19-1
	<i>Vishal Saxena and R. Jacob Baker</i>	

PART III Digital Circuits

20	Digital Design—Combinational Logic	20-1
	<i>Buren Earl Wells and Sin Ming Loo</i>	
21	Digital Design—Sequential Logic.....	21-1
	<i>Sin Ming Loo and Arlen Planting</i>	
22	Soft-Core Processors	22-1
	<i>Arlen Planting and Sin Ming Loo</i>	
23	Computer Architecture	23-1
	<i>Victor P. Nelson</i>	
24	FPGAs and Reconfigurable Systems.....	24-1
	<i>Juan J. Rodriguez-Andina and Eduardo de la Torre</i>	

PART IV Digital and Analog Signal Processing

25	Signal Processing.....	25-1
	<i>James A. Heinen and Russell J. Niederjohn</i>	
26	Analog Filter Synthesis	26-1
	<i>Nam Pham and Bogdan M. Wilamowski</i>	
27	Active Filter Implementation.....	27-1
	<i>Nam Pham, Bogdan M. Wilamowski, and John W. Steadman</i>	
28	Designing Passive Filters with Lossy Elements.....	28-1
	<i>Marcin Jagiela and Bogdan M. Wilamowski</i>	

PART V Electromagnetics

29	Electromagnetic Fields I	29-1
	<i>Sadasiva M. Rao, Tyler N. Killian, and Michael E. Baginski</i>	
30	Propagating Electromagnetic Fields.....	30-1
	<i>Michael E. Baginski, Sadasiva M. Rao, and Tyler N. Killian</i>	
31	Transmission Line Time-Domain Analysis and Signal Integrity.....	31-1
	<i>Edward Wheeler, Jianjian Song, and David R. Voltmer</i>	
Index		Index-1