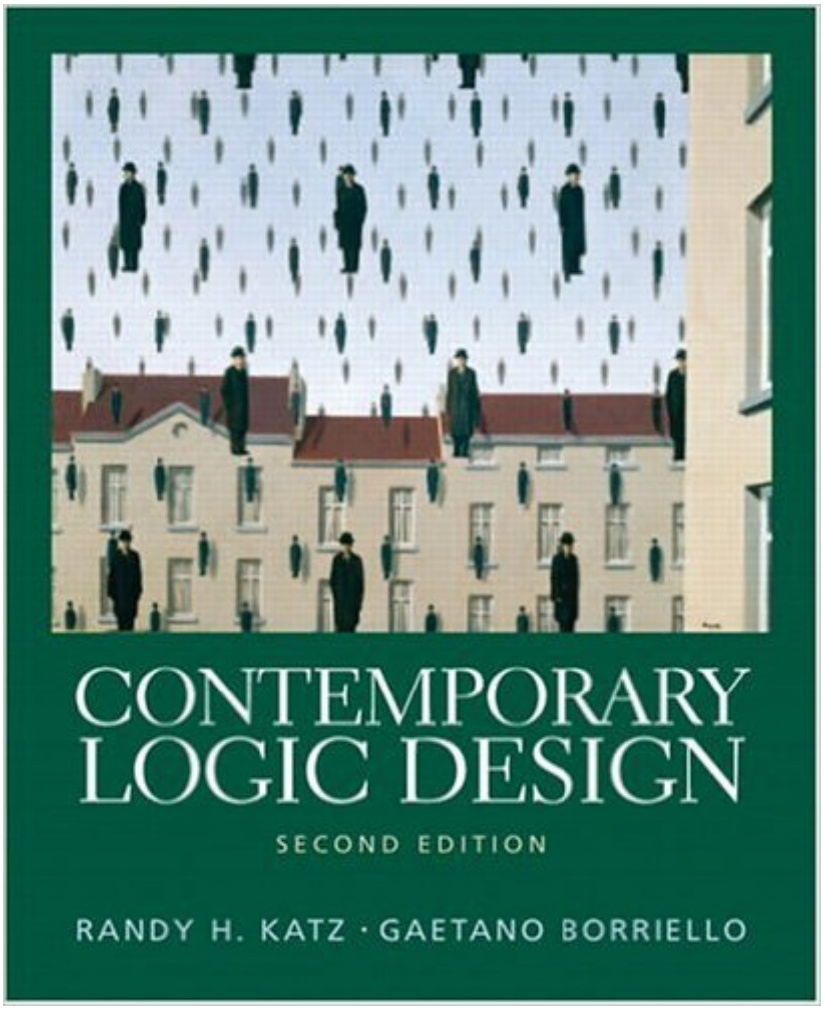
Contemporary Logic Design (2nd Edition)



Synopsis

BASIC APPROACH In the past ten years there has been a revolution in the practice of hardware design. Professionals now rely on CAD software, rapid prototyping, and programmable logic devices to streamline the design process. Contemporary Logic Design is the first text to address these changes -- and to offer a truly modern introduction to logic design. Throughout, the author complements his presentation of logic design theory with discussions of current design technologies. Approximately 60% of the book presents new material; the remainder has been re-organized and partially re-written to correspond to the organizational changes.

Book Information

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Customer Reviews

This is a sound, competent introduction to the elements of contemporary logic design. It covers all the basics: boolean logic, gate implementations, and the elements of binary arithmetic. It talks about minimization techniques, logic delays, and some of the classic logic implementation technologies (PLAs, decoders, muxes). It gives the basics of common notation, including timing diagrams, gate-level schematics, and so on. The last few chapters discuss synchronous (clocked) design and design of state machines, including standard reduction techniques. All the basics of modern design are there. A good student will start to see the number of different ways any problem can be solved, and start to recongize that no one perspective will solve all problems, at least not well.Asynchronous logic, based on stable states of combinational circuits with feedback, is one of the topics skipped.

That’s still important in the interior of flip-flops and in niche application areas, but asynchronous design certainly not in the main stream any more. Likewise, the authors skip over transistor-level design (mostly), the oddities of J-K flops, and most discussion of discrete or MSI logic. Well, that makes sense. Most logic these days is implemented in PALs (which are covered) or larger-scale devices. 7400-level devices have pretty much gone the way of relays and tubes - of historical interest, mostly. Remember that this is "Contemporary" logic, and those aren’t big concerns in the daily work of most contemporary logic designers.There are other omissions that make sense for a first-term course. Hardware description languages (e.g. Verilog or VHDL) are barely mentioned; they’re critical in daily practice, but may not be useful until students have mastered this book’s level. Micro-sequencers might also be a bit advanced for this presentation, despite their usefulness and their conceptual importance in later courses. More complex design examples would have helped, but would probably have started making bad assumptions about tools available to the student. Sticking to simple problems, however, may not prepare the student for systems of realistic complexity. Some of the omissions really don’t do the student any favors. When logic design is so separate from other kinds of circuit design, students come away with a critical lack of understanding of how logic fits into a whole system. There’s just no mention of signal integrity, drive strength, power consumption, jitter and skew, interfacing, or all the points where logic hits the rest of the world. Nothing in this book prepares a student for reading a standard spec sheet, let alone reading between its lines. I can only hope that instructors using this book make up for some of those deficiencies in supplementary material or in the lab.The authors have chosen a range of topics to cover, and have covered it with workman-like competence. It’s good as far as it goes. My only problem is that it doesn’t go into the second semester, into the underlying technology (or not much), or very far into the real world.//wiredweird

The very fact that several major universities use Contemporary Logic Design for their introductory digital logic design courses is a recommendation initself; having taken just such a course using this book, I found both the ’lightweight’ examples excellent for breaking new intellectual ground, and the ’indepth’ example projects, developed from the initial specification, through all phases of design, and into the final implementation, often with resultant waveforms, to provide the much needed feel of the effort involved in a real design project. A perfect introductory text for anyone interested in circuit logic design.

This book is thorough with the simple things, but it brings a surprising combination of sloppy

examples, vague descriptions, and poor organization.That being said, anyone with a decent background in simple logic design should find this book helpful. You can learn the stuff, even if it isn't organized in the most useful way. Overall it is a decent book, and I would recommend it to people interested in low to mid range complexity logic design.

When I was going to school at Berkeley I took Mr. Katz's course in logic design (CS150). This book was only in manuscript form at the time, but I found it easy to read and very practical. Now four years out of school, and immersed in the field, I find myself still referring back to it from time to time. That is the mark of a great textbook.

This book is really well written. Not only is it comprehensive, but it is written in the active tense, and addresses the reader as "you", and talks about "we", etc. This is a big plus in book writing, as too many authors were incorrectly taught that they should write extremely difficult to read texts that are impersonal and unnatural to read (thus distracting the readers from focusing on the material, and instead spending most of their energy on decoding the text).Mr. Katz knows how to write in a style that is efficient for the reader. His book is well organized, has nice graphics, great examples with accompanying graphically laid out solutions, and great illustrations.Whenever i look for books, i make sure they have these qualities:1) Pictures. Face it, w/ the possible exception of the blind, humans think visually. If you can't think of it visually, you won't learn it well.2) Clarity. Don't waste time struggling with the text. You need that energy to struggle with the MATERIAL itself.3) Examples. You don't just want example problems where you must do 90% of the work, when the author leaves out the most important and difficult steps. You want examples that really illustrate the the topic of interest while also reinforcing previous topics that are involved in the example.Katz' book has all of these features. It is no wonder he won the Distinguished Teacher Award. This is the finest textbook i've used in college so far.Some reviewers have difficulty with the material itself, and perhaps unduly blamed Katz, but i believe an objective analysis of textbook writing will prove that Katz is a very fine author, and this is a very fine book.

I had to purchase this book for a Digital Logic class i am taking. I am not very happy with the book since it does not cover concepts in detail (with examples in the text) instead it has questions at the end of the chapter but they do not offer the solutions in the book or online so it makes it difficult to know if you are understanding and getting the questions correct. It also jumps around in the chapters, no chapter is stand alone for a specific area.

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