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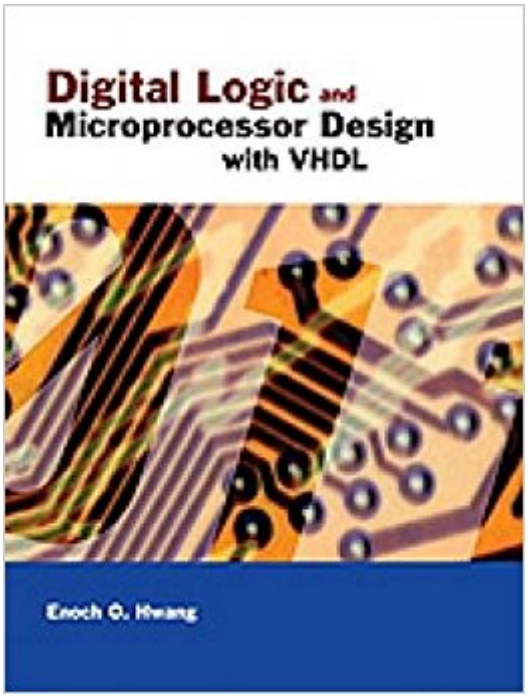
Digital Logic And Microprocessor Design With VHDL



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Synopsis

This book will teach students how to design digital logic circuits, specifically combinational and sequential circuits. Students will learn how to put these two types of circuits together to form dedicated and general-purpose microprocessors. This book is unique in that it combines the use of logic principles and the building of individual components to create data paths and control units, and finally the building of real dedicated custom microprocessors and general-purpose microprocessors. After understanding the material in the book, students will be able to design simple microprocessors and implement them in real hardware.

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Dr. Enoch Hwang has a Ph.D. in Computer Science from the University of California, Riverside. He currently serves as a Professor of Computer Science at La Sierra University in Southern California, teaching digital logic and microprocessor design. In 2015, Dr. Hwang was invited to serve as a visiting professor to Zhejiang University in Hangzhou, China, where he taught their Digital Systems Design course. Many new ideas from that class have been incorporated into this edition of the book. From as early as childhood, Dr. Hwang was fascinated with electronic circuits. In one of his first experiments, he attempted to connect a microphone to the speaker inside a portable radio through the earphone plug. Instead of hearing sound from the microphone through the speaker, smoke was seen coming out of the radio. Thus ended that experiment and his family’s only radio. He now continues on his interest in digital circuits with research in embedded microprocessor systems, controller automation, power optimization, and robotics.

There is plenty of information to learn in this book but I think it could use a little more detail and show more examples of VHDL code.Otherwise, plenty of variety. Not so much on the clarity.

Any solution for this book

"Digital Logic and Microprocessor Design with VHDL" by Hwang is a very well-written text book. One would think that authors of Digital Logic textbooks would be able to present the information in a logical manner. Ironically,Â Fundamentals of Digital Logic with VHDL Design with CD-ROMÂ by Brown, et al, (which is the required text for my class) fails to present the information in the most logical manner possible. The flow of Hwang’s book is very smooth. Hwang provides plenty of detailed examples along the way, so you know if you understand the material or not. Furthermore, the examples are presented in such a manner that it becomes a simple matter to extrapolate and

problem solve. If your professor tells you to purchase Brown’s textbook, I would ignore him/her and get Hwang’s book instead. Even if there is assigned homework from Brown, it would be so much easier to copy the problems or photocopy than to try and understand the highly choppy and convoluted presentation from Brown.

The author states, in Chapter 1:"In this book, I will show you from the ground up how to design the digital circuits inside the PC, or more precisely, the circuitry inside those black IC chips. Specifically, I will show you how to design the logic circuit for a microprocessor, which is at the heart of every electronic device."This is exactly what he does, step by step. There is sample code and a recommended development board that you can purchase for nominal cost to learn from. I am so glad this book is available and I am writing this review to encourage authors like this to continue. Interested people, hobbyists and professional engineers alike, will enjoy this walk through the mysterious world of IC chips.This is the best guide on the subject I have seen so far.

One of few STEM textbooks to successfully balance rigor and simplicity. You’ll learn a lot, but much more easily than you would expect with such heavy subject matter.

I read the book with the idea that I could learn the theory and implementation behind FPGA programming. Instead I got useless information about circuits and how they work in digital systems. Unless I am building my own synthesis tool, I found little to no information in implementing FPGA chips for mechatronic systems.To be fair, the book did provide a lot of logical designs in how microprocessors work. But I find that information useless because we have snythesizers that can do that for us.

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