

VLSI DESIGN

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P R E F A C E

The area of VLSI design has become the most popular field over the few decades due to the development in integrated circuit technology. This field which involves packing more and more logic devices into smaller and smaller areas. Using this technology circuits can be created within few millimeter or even nanometers. All modern digital designs start with a hardware description of the IC in verilog / VHDL. A Verilog or VHDL program describes the hardware and interconnects of the circuit blocks and its function.

Most of today's VLSI design are classified into three categories, those are Analog, ASIC (Application Specific Integrated Circuits) and SoC (System on Chip).

As we understand that the subject of VLSI design is vast its is quite complex to find and explain the complete details about the design process. This book VLSI Design, gives the platform to the Electronics Engineering students to learn the introduction and design of VLSI Circuits involved in this field.

This book also includes the topics like scaling of CMOS technology, CMOS testing, Combinational & sequential design and circuit simulation etc. While this publication is not a complete text book on VLSI design, it is intended to serve as supplementary or reference material on practical design and implementation of VLSI circuits. All the chapters in the book are arranged in a proper sequence that the student can easily understand all the basic concepts.

*✍ Dr. N. Malmurugan, Ms. S. Karthigaswathini
& Mr. P.N. Palanisamy*

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✍ Ms. S. Karthigaswathini

✍ Mr. P.N. Palanisamy



Thirumigu. M.G. BHARATHKUMAR
Founder & Chairman, Mahendra Educational Trust

Forward

"Computing in their capacity as a tool, computers will be but a ripple on the surface of our culture. In their capacity as intellectual challenge, they are without precedent in the cultural history of mankind".

-Edsger Dijkstra, 1972 Turing Award Lecture

The ECE Department seeks to educate engineers who will possess the basic concepts, tools, skills, and vision necessary to enhance the technological and economic competitiveness of society. This fact, combined with the undeniable impact of Electronics and Communication Engineering on the modern world, demands an introductory college text book comparable with commonly-used textbooks in physics, chemistry, or biology. Accordingly, this book is intended to meet the need for an introductory college text in ECE. The distinctive feature of the book is that it has broader coverage of the field than is found in many texts that are currently in use.

I am delighted to note that the Principal of Mahendra College of Engineering Dr. N. Malmurugan along with Faculties of Electronics and Communication Engineering Ms. S. Karthigaswathini and Mr. P.N. Palanisamy have written this book on "VLSI DESIGN" nicely, for the benefit of student community. They have accomplished this goal, and I trust their work will encourage and enlighten all who have an interest in IC Design, Low Power consumption, Realtime applications using Verilog and the growing role on Telecommunication sector in the modern world.

M.G. BHARATHKUMAR

Founder & Chairman, Mahendra Educational Trust

Dedicated
to
Our Family, Friends & Students

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