

## Preface

1  
2 **D**igital electronics are pretty well everywhere these days: in car  
3 engines, doorbells, and the washing machine — it is basic,  
4 basic technology. The basics were established in the late 19th  
5 and early 20th centuries. Later in the 20th century there was an  
6 explosion of electronics, computers, and memory, leading to smaller, faster  
7 devices and cheaper large-scale memory. The technology has changed a lot  
8 too. Some early devices were so revolutionary that they caused textbooks  
9 to be centred on them. Other technologies were so influential that they still  
10 permeate textbooks, long after their obsolescence. This leads to a stock of  
11 textbooks with a lot of history in them that diverts from appreciation of the  
12 basic material.

13 This book takes a new approach, combining a textbook with working  
14 demonstrations. It centres on the essentials and is thus much more compact.  
15 It has developed from my lecturing on digital electronics over the past  
16 30 years at the top department of electronics in the UK (well, it has been  
17 top of the league tables for all those years at least). In our courses we cover  
18 the basics of technologies, aiming for modern implementation. That is what  
19 this book is about.

20 In terms of style, example questions come at the end of each chapter.  
21 There are abbreviated solutions to the questions at the end of the book.  
22 There are quite a few logic simulators around these days, and there is  
23 support material for these within the book. There are worked examples for  
24 every circuit mentioned in this book using the Logisim simulator — these  
can help greatly the appreciation of basic issues. You will find these at the

1 book's website ([www.users.ecs.soton.ac.uk/msn/digitsbook/](http://www.users.ecs.soton.ac.uk/msn/digitsbook/)), where you  
2 will also find other support material (e.g. for lecturers).

3 There has been a lot of input to this book and it is hard to acknowledge it  
4 all. I'm very grateful to the students I have lectured and who have pointed out  
5 corrections and extensions to the material herein. There has also been much  
6 advice from the academic staff at the School of Electronics and Computer  
7 Science at the University of Southampton, and I am much indebted to  
8 Adrian Pickering for his help. I am thankful to the excellent team I have  
9 been working with at Imperial College Press. My research students have  
10 played their part, and my family provide a great background upon which  
11 to do my work.

12 The production of a book has many stages, all of which can lead to  
13 error. Those errors are naturally my responsibility and so I am pleased to  
14 offer pints of fine English real ale for any errata that you may find herein  
15 (which haven't been found already — I'm not that generous!). The current  
16 version of the erratum sheet is to be found at the book's website.

17 I certainly hope you enjoy the book, and that it gives you a pleasant  
18 and digestible introduction to one of the basic technologies of our modern  
19 society.

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