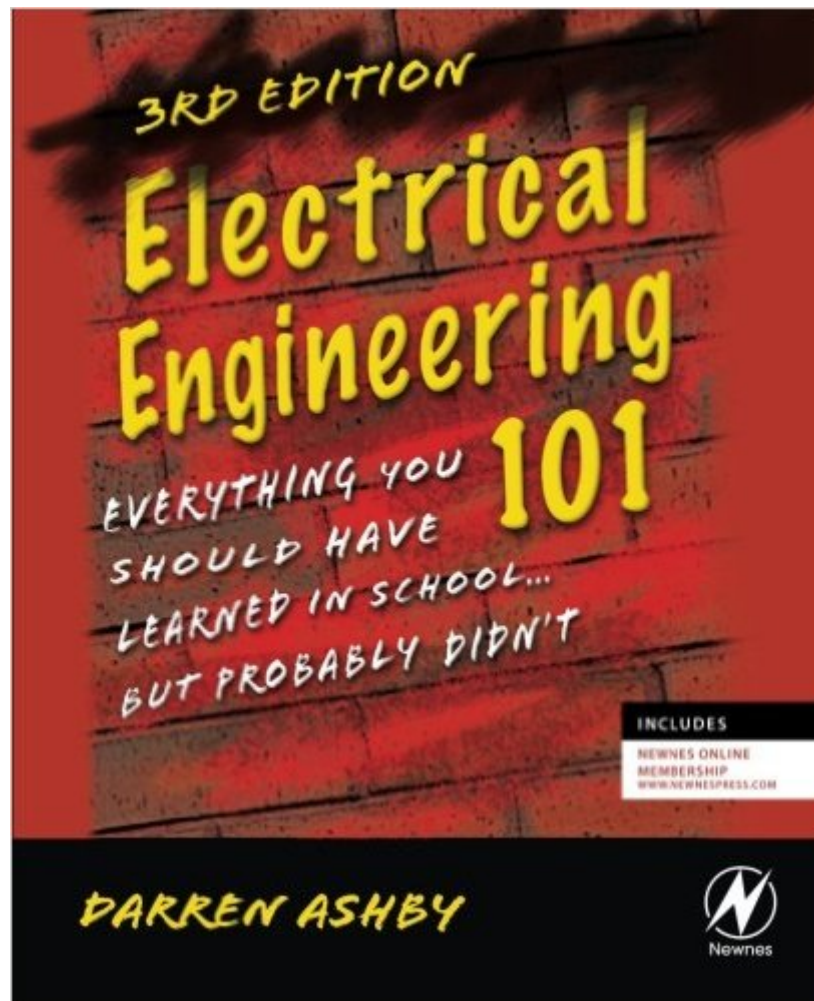


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# Electrical Engineering 101, Third Edition: Everything You Should Have Learned In School...but Probably Didn't



## Synopsis

Electrical Engineering 101 covers the basic theory and practice of electronics, starting by answering the question "What is electricity?" It goes on to explain the fundamental principles and components, relating them constantly to real-world examples. Sections on tools and troubleshooting give engineers deeper understanding and the know-how to create and maintain their own electronic design projects. Unlike other books that simply describe electronics and provide step-by-step build instructions, EE101 delves into how and why electricity and electronics work, giving the reader the tools to take their electronics education to the next level. It is written in a down-to-earth style and explains jargon, technical terms and schematics as they arise. The author builds a genuine understanding of the fundamentals and shows how they can be applied to a range of engineering problems. This third edition includes more real-world examples and a glossary of formulae. It contains new coverage of: MicrocontrollersFPGAsClasses of componentsMemory (RAM, ROM, etc.)Surface mountHigh speed designBoard layoutAdvanced digital electronics (e.g. processors)Transistor circuits and circuit designOp-amp and logic circuitsUse of test equipmentGives readers a simple explanation of complex concepts, in terms they can understand and relate to everyday life. Updated content throughout and new material on the latest technological advances.Provides readers with an invaluable set of tools and references that they can use in their everyday work.

## Book Information

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## Customer Reviews

If Horowitz and Hill have got your perplexed [ISBN: 0521370957], you need to read Ashby first. Without a firm grasp of the fundamentals delved by Ashby, a reader could be very lost. This is a book you can read BEFORE an electronics course, to guide you through what could be a confusing maze. This book is not focused on design, but on a faster way to understand fundamentals in electronics by developing intuition and removing as much math jumble as possible. Included are chapters for dealing with EE management and other EE related companies. This book is also exceedingly helpful for those in a non-Engineering track electronics courses, who maybe overwhelmed by the depth and audacity of a non-Engineering text like Horowitz and Hill. Here are its key points: Pros Very easy to read, user friendly; Easy to comprehend; Key concepts summed as rules of thumb on a side bar [ I use all regularly since I graduated in 1980 to this very day]; Superb editing, I noticed but one typo p. 166 "Let'ss"; Helps EE students focus on the essentials of key fundamental component function; Broad audience, applicable to the technician level versus EE; Touchy feely chapter works in many fields beyond EE; Helpful tidbits in the EMI chapter were superb! Cons Not enough material to get a design together, some assumption one has tried design and knows some in-outs; Need examples of a "putting it all together" using rules in sample design problems; No surface mount tips for a book written for the 21st Century EE? No catalog of manufacturers for construction? No tips on free samples? No tips on free evaluation boards?

NOTE; This review was for the second printing. The third printing has fixed about half the errors, and deleted some of the others, but there are still many there, as I just thumbed through the sample pages to check. The  $(-t/\tau)$  formulas have been removed, and the  $1/Rt$  corrected. The bad formulas for 3 resistors/inductors in parallel are still there, along with the defective Thevinized circuit, explained below. I actually can't believe this book made it to a second printing. Many of the engineering formulas are incorrect. In Chapter 2, I counted no less than 8 incorrectly stated equations; if you aren't familiar with electronics already, you wouldn't notice the mistakes, but heaven help you if you tried to design anything using the bad equations. In Equation 2.4, the exponent is supposed to be  $(-t/\tau)$  and is shown instead as  $(-\tau/rc)$ , and then the text defines  $RC = \tau$ . It just doesn't work. In equation 2.12, the author tries to explain the calculation for 3 resistors in parallel as calculating 2 resistors in parallel, and then redoing the calculation to add in the third resistor. This is wrong, too, and fairly easy to prove it's wrong just by sticking in 3 different values and calculating them with  $R1$  and  $R2$  first, then adding in  $R3$ , and then doing  $R2$  and  $R3$  first, followed by  $R1$ . Then, in the footnotes, a variation of the formula  $(Rt = 1/R1 + 1/R2 + 1/R3)$  is shown, though the first term should be  $1/Rt$ . This will also give you bad results. Don't believe me?

Try plugging actual values into the supposedly equivalent equations. He duplicates all these errors in the formulas for parallel/series capacitance and inductance, even in the footnotes.

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