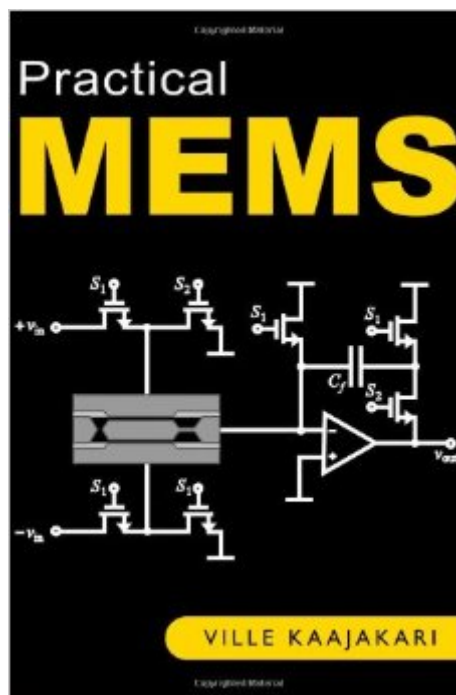


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# Practical MEMS: Design Of Microsystems, Accelerometers, Gyroscopes, RF MEMS, Optical MEMS, And Microfluidic Systems



## Synopsis

Practical MEMS focuses on analyzing the operational principles of microsystems. The salient features of the book include: Tutorial approach. The book emphasizes the design and analysis through over 100 calculated examples covering all aspects of MEMS design. Emphasis on design. This book focuses on the microdevice operation. First, the physical operation principles are covered. Second, the design equations are derived and exemplified. Practical MEMS is a perfect companion to MEMS fabrication textbooks. Quantitative performance analysis. The critical performance parameters for the given application are identified and analyzed. For example, the noise and power performance of piezoresistive and capacitive accelerometers is analyzed in detail. Mechanical, resistive (thermal and 1/f-noise), and circuit noise analysis is covered. Application specifications. Different MEMS applications are compared to commercial design requirements. For example, the optical MEMS is analyzed in the context of bar code scanner, projection displays, and optical cross connect specifications. MEMS economics and market analysis. A full chapter is devoted to yield and cost analysis of microfabricated devices. In addition, the market economics for emerging applications such as RF MEMS is discussed.

## Book Information

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## Customer Reviews

As a MEMS professional I find this book an invaluable complement to the selection of MEMS textbooks - I wish this book had existed already when I started my career in the field. The book is well written, and the practical examples facilitate understanding of the subject. For me, especially

the chapters on readout electronics have helped me become a better MEMS designer. I highly recommend investing in this book.

This MEMS book is a great introduction to MEMS - the explanations are clear with a nice overview of both MEMS devices and the signal conditioning that goes w/ them. I see this book being excellent for a first year graduate level course or for someone working in the field that would like to better understand MEMS devices. If you are looking for a more detailed book on MEMS device design and fabrication, etc., I recommend Senturia's MEMS book.

I am very happy to see this book. It covers MEMS devices. It does not cover microfabrication techniques -- there other books for that subject. It is not a survey book. This is a good book, and it is filled with a lot of useful equations. The book is also very easy to read, and it has a number of good examples. This book is perfect for someone who wants to design MEMS devices.

This book gives an excellent outline of the design process, fabrication, and cost analysis of developing a MEMS device. Highly recommended for courses focusing on MEMS development or as a reference for those experienced in the field.

This book is good for understanding and implementing practical applications for MEMS devices. It covers many different types of devices as well as different types of sensing elements used in these devices. It has chapters covering noise in the micromechanical systems, signal amplification and noise associated with the amplifiers showing how each part affects the overall device. I think that this books is a good investment.

This book was extremely needed, and is outstanding. Many books out there cover MEMS and integrated circuit processing. Some books cover the different types of MEMS in pretty much a survey form. Other books cover the math, but never tie it to the nitty gritty of microdevices. This book is not a survey, or another mathematical dynamics book. It is a book covering the actual design rules, basics, and math of the major categories of microsystems. Its written well, is both understandable and complete. It is the book I will be using to teach the first year graduate class on MEMS at my university.

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