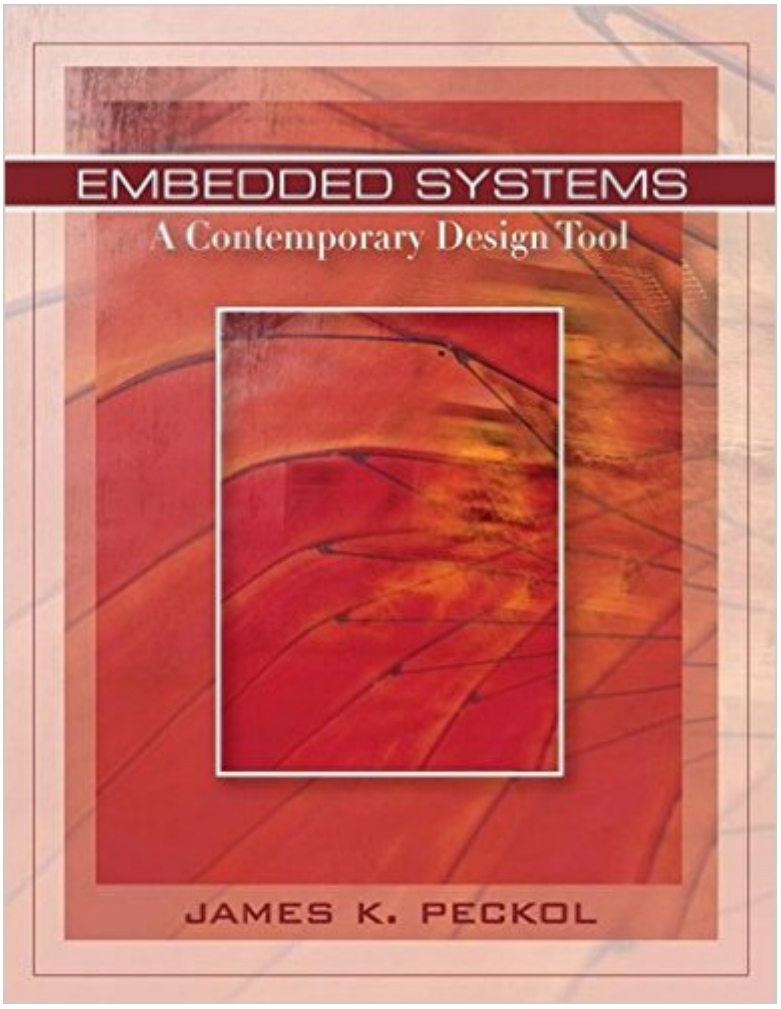
Embedded Systems: A Contemporary Design Tool



Synopsis

Embedded systems exposed! From operating our cars, to controlling the elevators we ride, to doing our laundry or cooking our dinner, the special computers we call embedded systems are quietly and unobtrusively doing their jobs. Embedded systems give us the ability to put increasingly large amounts of capability into ever-smaller devices. Embedded Systems: A Contemporary Design Tool introduces you to the theoretical and software foundations of these systems, and shows you how to apply embedded systems concepts to design practical applications that solve real-world challenges. Taking the user's problem and needs as your starting point, you'll delve into each of the key theoretical and practical aspects to consider when designing an application. Author James Peckol walks you through the formal hardware and software development process, covering: * How to break the problem down into major functional blocks * Planning the digital and software architecture of the system * Designing the physical world interface to external analog and digital signals * Debugging and testing throughout the development cycle * Improving performance Stressing the importance of safety and reliability in the design and development of embedded systems and providing a balance treatment of both the hardware and software aspects of embedded systems, Embedded Systems gives you the right tools for developing safe, reliable, and robust solutions in a wide range of embedded applications.

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Customer Reviews

I have used this text as reference to design and implement numerous embedded systems - from a simple numbers game to a wireless glove guitar.The materials presented in this book walks you through the entire hardware/software thought process that is applicable to any engineering design. The book stresses the importance of developing a modular high-level design before any implementation - and to consider things such as use cases,extreme cases, scalability, performance, and safety. The book also goes over the importance of documentation - how to properly read and write design specifications/requirements, block diagrams, timing diagrams, etc.In addition, the book covers the nitty-gritty details of digital implementation - from basic boolean algebra to complex kernel programming. The book also covers debugging/testing processes and common mistakes to avoid in embedded system development - backed with real-life examples. Finally, sample projects included in the book allow the reader to see and implement projects on their own.The writing style makes the text an easy-read and the numerous diagrams and examples solidifies the concepts presented.I highly recommend this book to any embedded systems engineer.

I used portions of this text during several embedded systems courses with Dr Peckol and it truly is an excellent resource and tool for an embedded engineer. It is a current, detailed, yet easily understandable look into all the aspects involved with embedded systems. I highly recommend this to anyone interested in this field or actively studying or working with embedded systems as you will no doubt benefit from Dr Peckol's insight.

As a former student of Professor James Peckol and having read portions of this book in my spare time, I can assure any prospective students looking for a secondary reference that this is book to get!This book provides the design processes and methodologies used in the real world (I am now in industry so I can attest to this) with some great examples. If you can take his class this is the next best thing...

This text book is insightful and extremely useful for faculty, graduate students and undergraduates alike in computer sciences. Up to date with much relevant information, presented in a detailed and articulate manner.

Systems (Embedded Technology) Analog Interfacing to Embedded Microprocessor Systems, Second Edition (Embedded Technology Series) Real-Time UML Workshop for Embedded Systems, Second Edition (Embedded Technology) Embedded Systems Architecture: A Comprehensive Guide for Engineers and Programmers (Embedded Technology) TCP/IP Embedded Internet Applications (Embedded Technology) Linux for Embedded and Real-time Applications, Third Edition (Embedded Technology) Linux for Embedded and Real-time Applications (Embedded Technology) Linux for Embedded and Real-time Applications, Second Edition (Embedded Technology) Embedded Systems Security: Practical Methods for Safe and Secure Software and Systems Development Embedded Systems: Real-Time Operating Systems for Arm Cortex M Microcontrollers Introduction to Embedded Systems: Using ANSI C and the Arduino Development Environment (Synthesis Lectures on Digital Circuits and Systems) Real-time Operating Systems (The engineering of real-time embedded systems Book 1) Memory Controllers for Real-Time Embedded Systems: Predictable and Composable Real-Time Systems: 2 Making Embedded Systems: Design Patterns for Great Software Embedded DSP Processor Design, : Application Specific Instruction Set Processors (Systems on Silicon) Fast and Effective Embedded Systems Design: Applying the ARM mbed Embedded Systems Design with Platform FPGAs: Principles and Practices