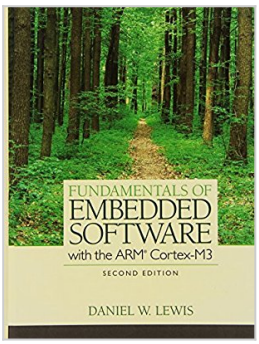

Fundamentals of Embedded Software with the ARM Cortex-M3

By Daniel W. Lewis

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For sophomore-level courses in Assembly Language Programming in Computer Science, Embedded Systems Design, Real-Time Analysis, Computer Engineering, or Electrical Engineering curricula. Requires prior knowledge of C, C++, or Java. This text is useful for Computer Scientists, Computer Engineers, and Electrical Engineers involved with embedded software applications.

This book is intended to provide a highly motivating context in which to learn procedural programming languages. The ultimate goal of this text is to lay a foundation that supports the multi-threaded style of programming and high-reliability requirements of embedded software. It presents assembly the way it is most commonly used in practice - to implement small, fast, or special-purpose routines called from a main program written in a high-level language such as C. Students not only learn that assembly still has an important role to play, but their discovery of multi-threaded programming, preemptive and non-preemptive systems, shared resources, and scheduling helps sustain their interest, feeds their curiosity, and strengthens their preparation for subsequent courses on operating systems, real-time systems, networking, and microprocessor-based design.

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Editorial Review

About the Author
Dr. Daniel W. Lewis' efforts led to the creation of Santa Clara University’s Computer Engineering department in 1988, providing its leadership for the first 18 years. During his tenure, Lewis established unique co-op and study abroad options that fit within the normal undergraduate four-year plan, the first graduate-level academic certificate programs for working professionals, a new interdisciplinary major in Web Design and Engineering, and a interdisciplinary minor in Information Technology and Society. Since 2004, Lewis has focused on K-12 outreach in engineering and computing, raising more than $1.7M from NSF and private sources, and providing professional development for more than 200 K-12 teachers and summer camps for more than 2,000 K-12 students.

Prior to joining the University in 1975, Lewis worked for six years at General Electric’s Aerospace Division where he designed a fault-tolerant clocking system for one of the first triple-redundant automatic landing systems for commercial aircraft. He has consulted for a number of Bay Area companies, including the Singer-Link Company, where his design of new algorithms and a corresponding modular array of VLSI circuits became the basis of a new product line of real-time computer graphics systems.

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