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Nota di contenuto	System modelling -- The PIC microcontroller -- Programming PIC microcontrollers in C -- Microcontroller project development -- Sampled data systems and the z-transform -- System time response characteristics -- System stability -- Discrete controller design -- Controller realization -- Liquid level digital control system : a case study.
Sommario/riassunto	Combines the theory and the practice of applied digital control This book presents the theory and application of microcontroller based automatic control systems. Microcontrollers are single-chip computers which can be used to control real-time systems. Low-cost, single chip and easy to program, they have traditionally been programmed using the assembly language of the target processor. Recent developments in this field mean that it is now possible to program these devices using high-level languages such as BASIC, PASCAL, or C. As a result, very complex control algorithms can be developed and implemented on the

microcontrollers. Presenting a detailed treatment of how microcontrollers can be programmed and used in digital control applications, this book: Introduces the basic principles of the theory of digital control systems. Provides several working examples of real working mechanical, electrical and fluid systems. Covers the implementation of control algorithms using microcontrollers. Examines the advantages and disadvantages of various realization techniques. Describes the use of MATLAB in the analysis and design of control systems. Explains the sampling process, z-transforms, and the time response of discrete-time systems in detail. Practising engineers in industry involved with the design and implementation of computer control systems will find Microcontroller Based Applied Digital Control an invaluable resource. In addition, researchers and students in control engineering and electrical engineering will find this book an excellent research tool.