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Titolo	Digital Systems : From Logic Gates to Processors / / by Jean-Pierre Deschamps, Elena Valderrama, Lluís Terés
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Descrizione fisica	1 online resource (XV, 241 p. 250 illus., 33 illus. in color.)
Disciplina	621.381
Soggetti	Electronic circuits Microprocessors Electronics Microelectronics Circuits and Systems Processor Architectures Electronics and Microelectronics, Instrumentation
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Digital Systems -- Combinational circuits -- Arithmetic blocks -- Sequential circuits -- Synthesis of a processor -- Design methods -- Physical implementation -- .
Sommario/riassunto	This textbook for a one-semester course in Digital Systems Design describes the basic methods used to develop “traditional” Digital Systems, based on the use of logic gates and flip flops, as well as more advanced techniques that enable the design of very large circuits, based on Hardware Description Languages and Synthesis tools. It was originally designed to accompany a MOOC (Massive Open Online Course) created at the Autonomous University of Barcelona (UAB), currently available on the Coursera platform. Readers will learn what a digital system is and how it can be developed, preparing them for steps toward other technical disciplines, such as Computer Architecture, Robotics, Bionics, Avionics and others. In particular, students will learn to design digital systems of medium complexity, describe digital systems using high level hardware description languages, and

understand the operation of computers at their most basic level. All concepts introduced are reinforced by plentiful illustrations, examples, exercises, and applications. For example, as an applied example of the design techniques presented, the authors demonstrate the synthesis of a simple processor, leaving the student in a position to enter the world of Computer Architecture and Embedded Systems. Provides textbook coverage for one-semester, introductory course in Digital Systems; Explains how to develop digital systems, starting from a functional specification; Emphasizes the relationship between algorithms and circuits (top down approach) and on the use of high level languages (Pseudo-code, VHDL, C); Describes the main problems development engineers are faced with, during the process of developing a new circuit; Demonstrates which design tools are necessary to develop a new circuit; Includes numerous, solved-examples in-text, as well as end of chapter exercises.
