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	Titolo	Engine Modeling and Control : Modeling and Electronic Management of Internal Combustion Engines / / by Rolf Isermann
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2014
	ISBN	3-642-39934-7
	Edizione	[1st ed. 2014.]
	Descrizione fisica	1 online resource (646 p.)
	Disciplina	620
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	Soggetti	Automotive engineering
		Control engineering
		Engines
		Machinery
		Automotive Engineering
		Control and Systems Theory
		Engine Technology
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
	Nota di contenuto	Introduction -- I Engine Modeling and Identification Methods -- Theoretical Modeling -- Experimental Modeling of Engines -- II Engine Models -- Spark Ignition Engines -- Diesel Engines -- III Engine Control -- Engine Control Structure and Components -- Engine-control methods and calibration -- Control of Gasoline Engines -- Control of Diesel Engines.
	Sommario/riassunto	The increasing demands for internal combustion engines with regard to fuel consumption, emissions and driveability lead to more actuators, sensors and complex control functions. A systematic implementation of the electronic control systems requires mathematical models from basic design through simulation to calibration. The book treats physically-based as well as models based experimentally on test

benches for gasoline (spark ignition) and diesel (compression ignition) engines and uses them for the design of the different control functions. The main topics are: - Development steps for engine control - Stationary and dynamic experimental modeling - Physical models of intake, combustion, mechanical system, turbocharger, exhaust, cooling, lubrication, drive train - Engine control structures, hardware, software, actuators, sensors, fuel supply, injection system, camshaft - Engine control methods, static and dynamic feedforward and feedback control, calibration and optimization, HiL, RCP, control software development - Control of gasoline engines, control of air/fuel, ignition, knock, idle, coolant, adaptive control functions - Control of diesel engines, combustion models, air flow and exhaust recirculation control, combustion-pressure-based control (HCCI), optimization of feedforward and feedback control, smoke limitation and emission control This book is an introduction to electronic engine management with many practical examples, measurements and research results. It is aimed at advanced students of electrical, mechanical, mechatronic and control engineering and at practicing engineers in the field of combustion engine and automotive engineering.