1.	Record Nr.	UNINA9910144002903321
	Autore	Ingham John, Dr.
	Titolo	Chemical engineering dynamics : an introduction to modelling and computer simulation / / John Ingham, [and five others]
	Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH GmbH, , [2007] ©2007
	ISBN	1-281-23930-5 9786611239305 3-527-61421-4 3-527-61422-2
	Edizione	[3rd, completely rev. ed.]
	Descrizione fisica	1 online resource (643 p.)
	Disciplina	660.28155362
	Soggetti	Chemical engineering - Mathematical models
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Includes index.
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Chemical Engineering Dynamics; Contents; Preface; Acknowledgements; Nomenclature for Chapters 1-4; 1 Basic Concepts; 1.1 Modelling Fundamentals; 1.1.1 Chemical Engineering Modelling; 1.1.2 General Aspects of the Modelling Approach; 1.1.3 General Modelling Procedure; 1.2 Formulation of Dynamic Models; 1.2.1 Material Balance Equations; 1.2.2 Balancing Procedures; 1.2.2.1 Case A: Continuous Stirred-Tank Reactor; 1.2.2.2 Case B: Tubular Reactor; 1.2.2.3 Case C: Coffee Percolator; 1.2.3 Total Material Balances; 1.2.3.1 Case A: Tank Drainage; 1.2.4 Component Balances 1.2.4.1 Case A: Waste Holding Tank1.2.4.2 Case B: Extraction from a Solid by a Solvent; 1.2.5 Energy Balancing; 1.2.5.1 Case A: Continuous Heating in an Agitated Tank; 1.2.5.2 Case B: Heating in a Filling Tank; 1.2.5.3 Case C: Parallel Reaction in a Semi-Continuous Reactor with Large Temperature Changes; 1.2.6 Momentum Balances; 1.2.7 Dimensionless Model Equations; 1.2.7.1 Case A: Continuous Stirred-Tank Reactor (CSTR); 1.2.7.2 Case B: Gas-Liquid Mass Transfer to a Continuous Tank Reactor with Chemical Reaction; 1.3 Chemical Kinetics; 1.3.1 Rate of Chemical Reaction 1.3.2 Reaction Rate Constant1.3.3 Heat of Reaction; 1.3.4 Chemical

Sommario/riassunto	In this book, the modelling of dynamic chemical engineering processes is presented in a highly understandable way using the unique combination of simplified fundamental theory and direct hands-on computer simulation. The mathematics is kept to a minimum, and yet the nearly 100 examples supplied on a CD-ROM illustrate almost every aspect of chemical engineering science. Each example is described in detail, including the model equations. They are written in the modern user-friendly simulation language Berkeley Madonna, which can be run on both Windows PC and Power-Macintosh computers.Mad