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Nota di contenuto	Chemical Engineering; Contents; Preface; 1 Why Modelling?; 1.1 Process and Process Modelling; 1.2 Observations on Some General Aspects of Modelling Methodology; 1.3 The Life-cycle of a Process and Modelling; 1.3.1 Modelling and Research and Development Stage; 1.3.2 Modelling and Conceptual Design Stage; 1.3.3 Modelling and Pilot Stage; 1.3.4 Modelling and Detailed Engineering Stage; 1.3.5 Modelling and Operating Stage; 1.4 Actual Objectives for Chemical Engineering Research; 1.5 Considerations About the Process Simulation; 1.5.1 The Simulation of a Physical Process and Analogous Computers References2 On the Classification of Models; 2.1 Fields of Modelling and Simulation in Chemical Engineering; 2.1.1 Steady-state Flowsheet Modelling and Simulation; 2.1.2 Unsteady-state Process Modelling and Simulation; 2.1.3 Molecular Modelling and Computational Chemistry; 2.1.4 Computational Fluid Dynamics; 2.1.5 Optimisation and Some Associated Algorithms and Methods; 2.1.6 Artificial Intelligence and Neural Networks; 2.1.7 Environment, Health, Safety and Quality Models; 2.1.8 Detailed Design Models and Programs; 2.1.9 Process Control; 2.1.10 Estimation of Parameters

2.1.11 Experimental Design; 2.1.12 Process Integration; 2.1.13 Process Synthesis; 2.1.14 Data Reconciliation; 2.1.15 Mathematical Computing Software; 2.1.16 Chemometrics; 2.2 Some Observations on the Practical Use of Modelling and Simulation; 2.2.1 Reliability of Models and Simulations; 2.2.2 The Role of Industry as Final User of Modelling and Simulation; 2.2.3 Modelling and Simulation in Innovations; 2.2.4 Role of Modelling in Technology Transfer and Knowledge Management; 2.2.5 Role of the Universities in Modelling and Simulation Development; References

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Sommario/riassunto

A description of the use of computer aided modeling and simulation in the development, integration and optimization of industrial processes. The two authors elucidate the entire procedure step-by-step, from basic mathematical modeling to result interpretation and full-scale process performance analysis. They further demonstrate similitude comparisons of experimental results from different systems as a tool for broadening the applicability of the calculation methods. Throughout, the book adopts a very practical approach, addressing actual problems and projects likely to be encountered by the

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