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Nota di contenuto	Front Cover -- Coulson and Richardson's Chemical Engineering -- Coulson & Richardson's Chemical Engineering -- Coulson and Richardson's Chemical Engineering: Volume 3A: Chemical and Biochemical Reactors and Reaction Engineering -- Copyright -- Contents -- List of Contributors -- About Prof. Coulson -- About Prof. Richardson -- Preface -- Introduction -- 1 - Reactor Design-General Principles -- 1.1 Basic Objectives in Design of a Reactor -- 1.1.1 By-products and Their Economic Importance -- 1.1.2 Preliminary Appraisal of a Reactor Project -- 1.2 Classification of Reactors and Choice of Reactor Type -- 1.2.1 Homogeneous and Heterogeneous Reactors -- 1.2.2 Batch Reactors and Continuous Reactors -- 1.2.3 Variations in Contacting Pattern-Semibatch Operation -- 1.2.4 Influence of Heat of Reaction on Reactor Type -- 1.2.4.1 Adiabatic Reactors -- 1.2.4.2 Reactors With Heat Transfer -- 1.2.4.3 Autothermal Reactor Operation -- 1.3 Choice of Process Conditions -- 1.3.1 Chemical Equilibria and Chemical Kinetics -- 1.3.2 Calculation of Equilibrium Conversion -- 1.3.3 Ultimate Choice of Reactor Conditions -- 1.4 Material and Energy Balances -- 1.4.1 Material Balance and the Concept of Rate of Generation of a Species -- 1.4.2 Energy Balance -- 1.5 Chemical Kinetics and Rate Equations -- 1.5.1 Definition of Order of Reaction and Rate Constant -- 1.5.2 Influence of Temperature: Activation Energy