

# **Introduction To Chemical Engineering Computing**

**JL Elias** 

# **Introduction To Chemical Engineering Computing:**

Introduction to Chemical Engineering Computing Bruce A. Finlayson, 2006-02-10 An innovative introduction to chemical engineering computing As chemical engineering technology advances so does the complexity of the problems that arise The problemsthat chemical engineers and chemical engineering students face today can no longer be answered with programs written on a case by case basis Introduction to Chemical Engineering Computing teaches professionals and students the kinds of problems they will have to solve the types of computer programs needed to solve these problems and how to ensure that the problems have been solved correctly Each chapter in Introduction to Chemical Engineering Computing contains a description of the physical problem in general terms and in a mathematical context thorough step by step instructions numerous examples and comprehensive explanations for each problem and program This indispensable text features Excel MATLAB r Aspen PlusTM and FEMLAB programs and acquaints readers with the advantages of each Perfect for students and professionals Introduction to Chemical Engineering Computing gives readers the professional tools they need to solve real world problems involving Equations of state Vapor liquid and chemical reaction equilibria Mass balances with recycle streams Mass transfer equipment Process simulation Chemical reactors Transfer processes in 1D Fluid flow in 2D and 3D Convective diffusion equations in 2D and 3D **Introduction to Chemical Engineering Computing Bruce A.** Finlayson, 2012-07-31 Step by step instructions enable chemical engineers to master key software programs and solve complex problems Today both students and professionals in chemical engineering must solve increasingly complex problems dealing with refineries fuel cells microreactors and pharmaceutical plants to name a few With this book as their guide readers learn to solve these problems using their computers and Excel MATLAB Aspen Plus and COMSOL Multiphysics Moreover they learn how to check their solutions and validate their results to make sure they have solved the problems correctly Now in its Second Edition Introduction to Chemical Engineering Computing is based on the author's firsthand teaching experience As a result the emphasis is on problem solving Simple introductions help readers become conversant with each program and then tackle a broad range of problems in chemical engineering including Equations of state Chemical reaction equilibria Mass balances with recycle streams Thermodynamics and simulation of mass transfer equipment Process simulation Fluid flow in two and three dimensions All the chapters contain clear instructions figures and examples to guide readers through all the programs and types of chemical engineering problems Problems at the end of each chapter ranging from simple to difficult allow readers to gradually build their skills whether they solve the problems themselves or in teams In addition the book's accompanying website lists the core principles learned from each problem both from a chemical engineering and a computational perspective Covering a broad range of disciplines and problems within chemical engineering Introduction to Chemical Engineering Computing is recommended for both undergraduate and graduate students as well as practicing engineers who want to know how to choose the right computer software program and tackle

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