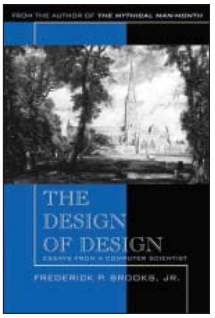
Books

The Design of Design: Essays from a Computer Scientist

Frederick P. Brooks, Addison-Wesley, Indianapolis, IN, 448 pages, $35, Mar. 2010, ISBN-13: 978-0-201-36298-5



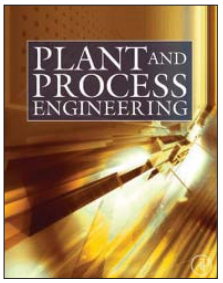
The design process is not well understood, either psychologically or practically. Yet effective design is at the heart of everything from software development to engineering to architecture. This collection of essays by Univ. of North Carolina computer science professor Fred Brooks contains insights for designers in a range of disciplines, identifying constants inherent in all design projects and examining the processes and patterns that lead to excellence.

This book is a sequel to the author's influential 1975 book, *The Mythical Man-Month: Essays on Software Engineering* — distilled from the author's experiences leading the development of IBM's landmark Operating System/360 computer in the 1960s. The new volume taps the author's six decades of experience as a designer in media including computer architecture, software, houses, and organizations.

The book tracks the rapidly evolving design process and the changing ways that designers work and collaborate, and it illuminates what makes a great designer. It examines the nuts and bolts of design processes, including budget constraints, aesthetics, design empiricism, and tools. The discussion is brought to life through case studies ranging from home construction to Brooks's experience with the IBM 360. Throughout, the book reveals keys to success that every designer, design project manager, and design researcher should know.

Plant and Process Engineering 360

Mike Tooley, Elsevier, Oxford, U.K., 608 pages, $130, Nov. 2009, ISBN-13: 978-1-85617-840-0

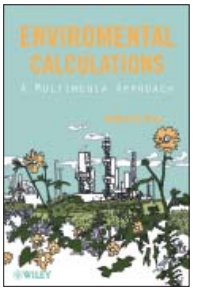


Plant and process engineering is a broad subject area, in which engineers need to be familiar with an array of techniques, technologies and equipment. This volume compiles selections from several recent books in the publisher's plant and process engineering collection, creating a single source of plant and process equipment information for engineers, and offering a 360-degree view of the equipment engineers encounter.

The book covers the systems and processes that drive effective and efficient plants and processes. Its breadth should make the volume a primary reference for engineers involved with designing, specifying, maintaining or working with plant, process and control technologies in industry sectors such as manufacturing, chemical processing, and energy. It should allow engineers to get up to speed quickly, even on unfamiliar topics.

Environmental Calculations: A Multimedia Approach

Robert G. Kunz, John Wiley & Sons, Hoboken, NJ, 703 pages, $125, Sept. 2009, ISBN: 978-0-470-13985-1



Operating a manufacturing facility requires environmental permits from a variety of regulatory agencies responsible for protecting human health and the environment. This book is a comprehensive reference for the technical calculations needed to obtain a broad range of such permits. Along with explanations of the concepts involved in permitting, it includes equations, examples, and case studies to support and clarify the calculations.

The book stems from the author's many years of experience procuring, maintaining, and negotiating environmental permits issued by government agencies. The author presents explanations, example problems, and solutions that represent the most typical situations encountered when performing calculations in support of environmental permit applications.

Oriented more toward technical issues than to specific environmental regulations, the book begins by describing the concepts involved in the environmental permitting process. Environmental chemistry concepts that factor into the permit process are reviewed, including the ideal gas law, vapor pressure, reaction stoichiometry, and heat effects. Subsequent chapters examine air pollution control; water and wastewater; solid and hazardous waste; noise generation, propagation and control; and radioactivity. Appendices explore case studies from the author's experience. The author also presents his philosophy on environmental control, including common misconceptions about the environment and organizations' approaches to environmental management responsibilities and regulations.

The book should serve as a valuable reference for anyone in industry seeking to understand and complete environmental permit applications. It is also intended for regulatory agency engineers concerned with environmental assessment and compliance, as well as agency personnel responsible for reviewing, issuing, and monitoring environmental permits. The calculation procedures could also serve as a college-level text in environmental stoichiometry to help engineers prepare for professional engineering licensure.