

Nuclear Reactor Engineering Glasstone

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LETICIA WARREN

Principles of Nuclear Reactor Engineering Elsevier
Nuclear Reactor Engineering, 4e Vol. I : Reactor Design
Basics Nuclear Reactor Engineering Reactor Systems
Engineering Springer Science & Business Media
Nuclear Reactor Engineering Springer

The authors of this text aim to educate the reader on nuclear power and its future potential. It focuses on nuclear accidents such as Chernobyl and Three Mile Island, and their consequences, with the understanding that there are safety lessons to be learned if nuclear power generation is going to be expanded to meet our growing energy needs.

Nuclear Reactor Engineering Elsevier

Dr. Samuel Glasstone, the senior author of the previous editions of this book, was anxious to live until his ninetieth birthday, but passed away in 1986, a few months short of this milestone. I am grateful for the many years of stimulation received during our association, and in preparing this edition have attempted to maintain his approach. Previous editions of this book were intended to serve as a text for students and a reference for practicing engineers. Emphasis was given to the broad perspective, particularly for topics important to reactor design and operation, with basic coverage provided in such supporting areas as neutronics, thermal-hydraulics, and materials. This, the Fourth Edition, was prepared with these same general objectives in mind. However, during the past three decades, the nuclear industry and university educational programs have matured considerably, presenting some challenges in meeting the objectives of this book. Nuclear power reactors have become much more complex, with an accompanying growth in supporting technology. University programs now offer separate courses covering such basic topics as reactor physics, thermal hydraulics, and materials. Finally, the general availability of inexpensive micro- and minicomputers has transformed design and analysis procedures so that sophisticated methods are now commonly used instead of earlier, more approximate approaches.

Port Engineering Wiley

In a part of North Africa where, within miles, the backdrop can change dramatically from snow-blasted mountains to wind-scoured dunes live the Berber people of the Atlas Mountains. In the third book of her trilogy on African women, world-renowned photojournalist Margaret Courtney-Clarke examines the difficult lives and remarkable arts of Berber women. As modern times and modern warfare in Algeria, Morocco, and Tunisia have encroached on their centuries-old traditions, Berber women have begun to give up the old ways. *Imazighen: The Vanishing Traditions of Berber Women* is a record of a quickly disappearing way of life. As in her earlier books, *Ndebele: The Art of an African Tribe* and *African Canvas: The Art of West African Women*,

Courtney-Clarke succeeds in capturing the spirit of the women by experiencing their world from season to season and by respecting their values and traditions. Through photographs, interviews, and observations, Courtney-Clarke documents the Berber women as they stoically carry water and firewood on their backs for miles of rocky terrain. And she records the beauty they have magically produced in their lives - through their spinning and weaving and their carefully coiled pottery - a metaphor for survival and creativity. Geraldine Brooks, award-winning journalist and an expert on life in the Middle East, accompanied Courtney-Clarke on her last trip to North Africa, and has written moving, thoughtful essays on the struggle of existence among the Berbers. With a glossary of Berber terms and a detailed map of the region, this book is not only a handsomely illustrated volume of the triumph of the arts of the Berber women, but a dramatic record of a people yielding to the pressures of the twentieth century.

Nuclear Energy Springer Science & Business Media

The book exposes the student to the various facets of nuclear fuel cycle right from mining to waste disposal. It introduces the student to the heat transfer and fluid flow processes in different types of reactors viz. Pressurized Water Reactor, Pressurized Heavy Water Reactor, Boiling Water Reactor, Gas Cooled Reactors and Fast Reactors besides aspects of nuclear safety. To help the student in better understanding Figures and Tables have been provided at various places in the text.

A Practical Perspective Amer Nuclear Society

A narrative history of the nuclear tests conducted by the United States in the Marshall Islands from 1946 to 1958.

Life at the Center of the Energy Crisis Van Nostrand Reinhold Company

Economic and regulatory pressures have yielded considerable progress in the science and technology of nuclear reactor design. This practical reference has been revised and updated to include the latest engineering and operational developments and the likely course of future trends.

Springer

This comprehensive book covers all major aspects of the design and maintenance of port facilities, including port planning, design loads for today's larger vessel size, seismic design guidelines, and breakwater design. New material addresses environmental concerns, the latest developments on inter-modal hubs and transfer points, and the latest information on port security and procedures being implemented around the world.

Nuclear Reactor Analysis S. Chand Publishing

Since the publication of the bestselling first edition, there have been numerous advances in the field of nuclear science. In medicine, accelerator based teletherapy and electron-beam therapy have become standard. New demands in national security have stimulated major advances in nuclear instrumentation. An ideal introduction to the fundamentals of nuclear science and engineering, this book presents the basic nuclear science needed to understand and quantify an extensive

range of nuclear phenomena. New to the Second Edition— A chapter on radiation detection by Douglas McGregor Up-to-date coverage of radiation hazards, reactor designs, and medical applications Flexible organization of material that allows for quick reference This edition also takes an in-depth look at particle accelerators, nuclear fusion reactions and devices, and nuclear technology in medical diagnostics and treatment. In addition, the author discusses applications such as the direct conversion of nuclear energy into electricity. The breadth of coverage is unparalleled, ranging from the theory and design characteristics of nuclear reactors to the identification of biological risks associated with ionizing radiation. All topics are supplemented with extensive nuclear data compilations to perform a wealth of calculations. Providing extensive coverage of physics, nuclear science, and nuclear technology of all types, this up-to-date second edition of *Fundamentals of Nuclear Science and Engineering* is a key reference for any physicists or engineer.

Reactor Systems Engineering John Wiley & Sons

An introductory text for broad areas of nuclear reactor physics Nuclear Reactor Physics and Engineering offers information on analysis, design, control, and operation of nuclear reactors. The author—a noted expert on the topic—explores the fundamentals and presents the mathematical formulations that are grounded in differential equations and linear algebra. The book puts the focus on the use of neutron diffusion theory for the development of techniques for lattice physics and global reactor system analysis. The author also includes recent developments in numerical algorithms, including the Krylov subspace method, and the MATLAB software, including the Simulink toolbox, for efficient studies of steady-state and transient reactor configurations. In addition, nuclear fuel cycle and associated economics analysis are presented, together with the application of modern control theory to reactor operation. This important book: Provides a comprehensive introduction to the fundamental concepts of nuclear reactor physics and engineering Contains information on nuclear reactor kinetics and reactor design analysis Presents illustrative examples to enhance understanding Offers self-contained derivation of fluid conservation equations Written for undergraduate and graduate students in nuclear engineering and practicing engineers, Nuclear Reactor Physics and Engineering covers the fundamental concepts and tools of nuclear reactor physics and analysis.

Introduction to Nuclear Power Springer Science & Business Media

Nuclear reactors play a key role in 21st Century energy production. This book provides critical research in both fission and fusion energy production as well as the technology of the reactors. The role of nuclear data in Accelerator Driven Systems in order to reduce the cost for reaching a certain level of safety is presented and a detailed discussion of turbulent mixing and void drift that includes state-of-the-art models is given. Motivation for construction of the fusion reactors, including the laser fusion facilities and other related problems, are addressed. A brief history of magnetic confinement fusion power plant conceptual designs, focusing on tokamaks, is outlined in this book. Furthermore, the progress and state-of-the-art of principal aspects of fusion safety and environment are discussed. Since a high quality of vacuum integrity is required in large tokamak machines, leak detection systems are overviewed and a reasonable leak detection strategy is proposed.

Introduction to Nuclear Reactor Theory Cambridge University Press

Dr. Samuel Glasstone, the senior author of the previous editions of this book, was anxious to live until his ninetieth birthday, but passed away in 1986, a few months short of this milestone. I am

grateful for the many years of stimulation received during our association, and in preparing this edition have attempted to maintain his approach. Previous editions of this book were intended to serve as a text for students and a reference for practicing engineers. Emphasis was given to the broad perspective, particularly for topics important to reactor design and operation, with basic coverage provided in such supporting areas as neutronics, thermal-hydraulics, and materials. This, the Fourth Edition, was prepared with these same general objectives in mind. However, during the past three decades, the nuclear industry and university educational programs have matured considerably, presenting some challenges in meeting the objectives of this book. Nuclear power reactors have become much more complex, with an accompanying growth in supporting technology. University programs now offer separate courses covering such basic topics as reactor physics, thermal hydraulics, and materials. Finally, the general availability of inexpensive xv xvi Preface powerful micro-and minicomputers has transformed design and analysis procedures so that sophisticated methods are now commonly used instead of earlier, more approximate approaches.

Principles of Nuclear Reactor Engineering John Wiley & Sons Classic textbook for an introductory course in nuclear reactor analysis that introduces the nuclear engineering student to the basic scientific principles of nuclear fission chain reactions and lays a foundation for the subsequent application of these principles to the nuclear design and analysis of reactor cores. This text introduces the student to the fundamental principles governing nuclear fission chain reactions in a manner that renders the transition to practical nuclear reactor design methods most natural. The authors stress throughout the very close interplay between the nuclear analysis of a reactor core and those nonnuclear aspects of core analysis, such as thermal-hydraulics or materials studies, which play a major role in determining a reactor design.

Nuclear Reactor Engineering: Reactor design basics World Scientific

NUCLEAR ENGINEERING FUNDAMENTALS is the most modern, up-to-date, and reader friendly nuclear engineering textbook on the market today. It provides a thoroughly modern alternative to classical nuclear engineering textbooks that have not been updated over the last 20 years. Printed in full color, it conveys a sense of awe and wonder to anyone interested in the field of nuclear energy. It discusses nuclear reactor design, nuclear fuel cycles, reactor thermal-hydraulics, reactor operation, reactor safety, radiation detection and protection, and the interaction of radiation with matter. It presents an in-depth introduction to the science of nuclear power, nuclear energy production, the nuclear chain reaction, nuclear cross sections, radioactivity, and radiation transport. All major types of reactors are introduced and discussed, and the role of internet tools in their analysis and design is explored. Reactor safety and reactor containment systems are explored as well. To convey the evolution of nuclear science and engineering, historical figures and their contributions to evolution of the nuclear power industry are explored. Numerous examples are provided throughout the text, and are brought to life through life-like portraits, photographs, and colorful illustrations. The text follows a well-structured pedagogical approach, and provides a wide range of student learning features not available in other textbooks including useful equations, numerous worked examples, and lists of key web resources. As a bonus, a complete Solutions Manual and .PDF slides of all figures are available to qualified instructors who adopt the text. More than any other fundamentals book in a generation, it is student-friendly, and truly impressive in its

design and its scope. It can be used for a one semester, a two semester, or a three semester course in the fundamentals of nuclear power. It can also serve as a great reference book for practicing nuclear scientists and engineers. To date, it has achieved the highest overall satisfaction of any mainstream nuclear engineering textbook available on the market today.

How Products, Components and Materials are Made

Springer

A comprehensive reference book for those with interest in, or need to know, how operations in the world's factories work, and how common products, components, and materials are made.

With the Ass. of Ornl Staff-members : Repr

Pearson/Education

Have you ever wondered how a nuclear power station works?

This lively book will answer that question. It'll take you on a journey from the science behind nuclear reactors, through their start-up, operation and shutdown. Along the way it covers a bit of the engineering, reactor history, different kinds of reactors and what can go wrong with them. Much of this is seen from the viewpoint of a trainee operator on a Pressurised Water Reactor - the most common type of nuclear reactor in the world. Colin Tucker has spent the last thirty years keeping reactors safe. Join him on a tour that is the next best thing to driving a nuclear reactor yourself!

Nuclear Reactor Engineering, etc CRC Press

This book focuses on core design and methods for design and analysis. It is based on advances made in nuclear power utilization and computational methods over the past 40 years, covering core design of boiling water reactors and pressurized water reactors, as well as fast reactors and high-temperature gas-cooled reactors. The objectives of this book are to help graduate and advanced undergraduate students to understand core design and analysis, and to serve as a background reference for engineers actively working in light water reactors.

Methodologies for core design and analysis, together with physical descriptions, are emphasized. The book also covers coupled thermal hydraulic core calculations, plant dynamics, and safety analysis, allowing readers to understand core design in relation to plant control and safety.

Nuclear Reactor Engineering (Principle and Concepts) Nova Science Pub Incorporated

Life at the Center of the Energy Crisis: A Technologist's Search

for a Black Swan describes the story of the author's work and struggles in the field of energy research. The author's experience in the field spans from work with Admiral Rickover and the Nuclear Navy to research with NASA designing propulsion for spacecraft to travel to Mars. The book provides insights into the differences between nuclear research done during the Cold War by the two superpowers, and offers a commentary on the flaws in each system with hope for change in the future. The book also provides a look into the development of the nuclear engineering program at the University of Illinois from the author's years as a professor and an administrator.

Fundamentals of Nuclear Reactor Physics Springer Nature

The text is designed for junior and senior level Nuclear Engineering students. The third edition of this highly respected text offers the most current and complete introduction to nuclear engineering available. Introduction to Nuclear Engineering has been thoroughly updated with new information on French, Russian, and Japanese nuclear reactors. All units have been revised to reflect current standards. In addition to the numerous end-of-chapter problems, computer exercises have been added.

Nuclear Reactor Theory CRC Press

This expanded, revised, and updated fourth edition of Nuclear Energy maintains the tradition of providing clear and comprehensive coverage of all aspects of the subject, with emphasis on the explanation of trends and developments. As in earlier editions, the book is divided into three parts that achieve a natural flow of ideas: Basic Concepts, including the fundamentals of energy, particle interactions, fission, and fusion; Nuclear Systems, including accelerators, isotope separators, detectors, and nuclear reactors; and Nuclear Energy and Man, covering the many applications of radionuclides, radiation, and reactors, along with a discussion of wastes and weapons. A minimum of mathematical background is required, but there is ample opportunity to learn characteristic numbers through the illustrative calculations and the exercises. An updated Solution Manual is available to the instructor. A new feature to aid the student is a set of some 50 Computer Exercises, using a diskette of personal computer programs in BASIC and spreadsheet, supplied by the author at a nominal cost. The book is of principal value as an introduction to nuclear science and technology for early college students, but can be of benefit to science teachers and lecturers, nuclear utility trainees and engineers in other fields.