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***Nuclear
Engineering: A
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Introduction to
Nuclear Power
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***coverage of the
introductory,
salient
principles of
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engineering in a
comprehensive
manner for
those entering
the profession
at the end of
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The nuclear power industry is undergoing a renaissance because of the desire for low-carbon baseload electricity, the growing population, and environmental concerns about

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***shale gas, so
this book is a
welcomed
addition to the
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addition, users
will find a great
deal of
information on
the change in
the industry,
along with other***

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***topical areas of
interest that are
uniquely
covered.***

***Intended for
undergraduate
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early***

***postgraduate
students***

***studying nuclear
engineering,***

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***this new text
will also be
appealing to sci
entifically-
literate non-
experts wishing
to be better
informed about
the 'nuclear
option'.***

***Presents a
succinct and***

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***clear
explanation of
the key facts
and concepts on
how nuclear
engineering
power systems
function and
how their
related fuel
supply cycles
operate Provides***

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***full coverage of
the nuclear fuel
cycle, including
its scientific and
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Describes a
comprehensive
range of
relevant reactor
designs, from
those that are
defunct,***

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current, and in
plan/construction***

***for the future,
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and GenIV***

***Summarizes all
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and their impact
on the industry
and society***

***Building upon
the success of***

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***the first edition,
the Nuclear
Engineering
Handbook,
Second Edition,
provides a
comprehensive,
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overview of
nuclear power
engineering.
Consisting of***

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***chapters written
by leading
experts, this
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operation,
nuclear fuel
cycles, and***

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safety issues are
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the economics
of nuclear power
generation in
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are presented.
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for reactors
using CFD and
their design, the
modeling of
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Model
Development for
Two-phase
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***Applications for
Sodium and
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Reactor***

***Designs. Editors
Joshi and Nayak
have an
invaluable
wealth of
experience that
enables them to
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*development of
CFD models, the*

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currently in

practice, and

the future of

CFD in nuclear

reactors.

Readers will

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discussion on

each aspect of

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applications for
the design and
safety
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reactor concepts
that will help
them develop
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a thematic and
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***applications for
the design and
safety***

***assessment of
nuclear reactors
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***historical review
of the
development of
CFD models,
discusses state-
of-the-art
concepts, and
takes an applied
and analytic
look toward the
future Includes
CFD tools and***

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provides
essential**

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**and growing
importance to
current and
future nuclear
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of radioactive**

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driven systems.
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essential
resource for any
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such as the

connection

between

hydraulic

fracturing

(fracking),

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meet the needs
of today's
students and
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plant operators,

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areas of
knowledge that
comprise the
field and
explains rather
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the relevant
physical**

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and design is
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**Reactor safety
and reactor
containment**

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and
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historical
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contributions to
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Stations: Balance-of-

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as a ready reference to

better analyze

common engineering

challenges in the areas

of turbine cycle

analysis,

thermodynamics, and

heat transfer. The

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scope of the book is broad and comprehensive, encompassing the mechanical aspects of the entire nuclear station balance of plant from the source of the motive steam to the discharge and/or utilization of waste heat and beyond.

Written for engineers

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in the fields of nuclear
plant and thermal
engineering, the book
examines the daily,
practical problems
encountered by
mechanical design,
system, and
maintenance
engineers. It provides
clear examples and
solutions drawn from
numerous case studies

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in actual, operating
nuclear stations.

During the last decade,
rapid growth of
knowledge in the field
of jet, rocket, nuclear,
ion and electric
propulsion has resulted
in many advances
useful to the student,
engineer and scientist.
The purpose for
offering this course is

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to make available to them these recent advances in theory and design. Accordingly, this course is organized into seven parts: Part 1 Introduction; Part 2 Jet Propulsion; Part 3 Rocket Propulsion; Part 4 Nuclear Propulsion; Part 5 Electric and Ion

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Propulsion; Part 6
Theory on
Combustion,
Detonation and Fluid
Injection; Part 7
Advanced Concepts
and Mission
Applications. It is
written in such a way
that it may easily be
adopted by other
universities as a
textbook for a one

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semester senior or graduate course on the subject. In addition to the undersigned who served as the course instructor and wrote Chapter 1, 2 and 3, guest lecturers included: DR. G. L. DUGGER who wrote Chapter 4 "Ram-jets and Air-Augmented Rockets," DR.

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GEORGE P.

SUTTON who wrote

Chapter 5 "Rockets

and Cooling

Methods," DR . .

MARTIN

SUMMERFIELD who

wrote Chapter 6 "Solid

Propellant Rockets,"

DR. HOWARD S.

SEIFERT who wrote

Chapter 7 "Hybrid

Rockets," DR.

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CHANDLER C. ROSS

who wrote Chapter 8

"Advanced Nuclear

Rocket Design," MR.

GEORGE H.

McLAFFERTY who

wrote Chapter 9

"Gaseous Nuclear

Rockets," DR. S. G.

FORBES who wrote

Chapter 10 "Electric

and Ion Propul sion,"

DR. R. H. BODEN

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who wrote Chapter 11
"Ion Propulsion," DR.

The nuclear fuel cycle is characterised by the wide range of scientific disciplines and technologies it employs. The development of ever more integrated processes across the many stages of the nuclear fuel cycle

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therefore confronts
plant manufacturers
and operators with
formidable challenges.

Nuclear fuel cycle
science and
engineering describes
both the key features
of the complete
nuclear fuel cycle and
the wealth of recent
research in this
important field. Part

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one provides an introduction to the nuclear fuel cycle.

Radiological protection, security and public acceptance of nuclear technology are considered, along with the economics of nuclear power. Part two goes on to explore materials mining, enrichment, fuel

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element design and fabrication for the uranium and thorium nuclear fuel cycle. The impact of nuclear reactor design and operation on fuel element irradiation is the focus of part three, including water and gas-cooled reactors, along with CANDU and Generation IV

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designs. Finally, part four reviews spent nuclear fuel and radioactive waste management. With its distinguished editor and international team of expert contributors, Nuclear fuel cycle science and engineering provides an important review for all those involved

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in the design,
fabrication, use and
disposal of nuclear
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comprehensive and
holistic review of the
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cycle Reviews the
issues presented by the
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Discusses issues at the
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Balance-of-Plant

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The 18th International
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(ICONE-18), [... Held
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This edition builds on
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coverage, application of theory to practical aspects of commercial nuclear power, and use of instructional objectives. Like the first edition, it focuses on what distinguishes nuclear engineering from the other engineering disciplines. However, this edition includes

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reorganization and overall update of descriptions of reactor designs and fuel-cycle steps, and more emphasis on reactor safety, especially related to technical and management lessons learned from the TMI-2 and Chernobyl - 4 accidents.

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critical to presentday
in-service reactor
support and
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next generation of
researchers and
industry staff
developing and
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nickel-base alloys,
zirconium alloys, and
other structural
alloys in nuclear
energy applications.

This authoritative

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The clamor for non-carbon dioxide emitting energy production has directly impacted on the development of nuclear energy. As new nuclear plants

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*are built, plans and
designs are*

*continually being
developed to manage
the range of
challenging
requirement and
problems that
nuclear plants face
especially when
managing the
greatly increased*

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with a systemic*

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*approach. Important
components and*

*materials currently
in use as well as*

*those which can be
considered in future*

*designs are detailed,
whilst the damage*

mechanisms

*responsible for plant
ageing are discussed*

and explained.

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materials***

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and advanced
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will be described
including design
code considerations
and non-destructive
evaluation concepts.
Including models***

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*and knowledge of
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nuclear authorities

will also find this a

useful reference.

This is an

authoritative

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*regarding methods
and data used in all
phases of nuclear
engineering.*

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scientists at all
levels, this book
provides a
condensed reference*

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1958.*

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for broad areas of
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physics Nuclear
Reactor Physics and
Engineering offers
information on
analysis, design,
control, and*

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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

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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

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*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*

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*fuel cycle and
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are presented,

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theory to reactor

operation. This

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Provides a

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Nuclear Fuel Cycle

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understanding of
nuclear code
development and
how to apply it to
their work and
research to make
their energy
production more
flexible,
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and safe. Written in
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practical way, each
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and robust models

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and simulation
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information on the
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predecessors

Presents the most recent updates and developments, including the capabilities, limitations, and future development needs of all codes
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knowledge to apply
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safeguards and non-
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fuel processing with
partitioning and
transmutation is

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for practicing

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engineers,
researchers and
professionals.

Despite all the
efforts being put
into expanding
renewable energy
sources, large-scale
power stations will
be essential as part
of a reliable energy
supply strategy for

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a longer period.
Given that they are
low on CO₂
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countries are
moving into or
expanding nuclear
energy to cover
their baseload
supply. Building
structures required
for nuclear plants

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whose protective function means they are classified as safety-related, have to meet particular construction requirements more stringent than those involved in conventional construction. This

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book gives a comprehensive overview from approval aspects given by nuclear and construction law, with special attention to the interface between plant and construction engineering, to a

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building structure

classification. All

life cycle phases are

considered, with

the primary focus

on execution.

Accidental actions

on structures, the

safety concept and

design and

fastening systems

are exposed to a

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particular
treatment. Selected
chapters from the
German concrete
yearbook are now
being published in
the new English
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benefit of an
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was founded in 1906, the Ernst & Sohn "Beton-Kalender" has been supporting developments in reinforced and prestressed concrete. The aim was to publish a yearbook to reflect progress in "ferro-

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concrete" structures until - as the book's first editor, Fritz von Emperger (1862-1942), expressed it - the "tempestuous development" in this form of construction came to an end.

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However, the
"Beton-Kalender"
quickly became the
chosen work of
reference for civil
and structural
engineers, and
apart from the
years 1945-1950
has been published
annually ever since.
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Vol. 3: Reactor

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*Engineering is
derived from
over 25 years
of teaching
undergraduate
and graduate
courses on
nuclear
engineering.
The material*

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information

that is

missing in

traditional

texts, such as

space

radiation. The

aim of the

book is to

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upper level

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undergraduate

and graduate

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engineering.

The

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*radioactive
debris*

following

reactor

disasters has

been given

extensive and

careful

engineering

attention over

the past

several years.

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Much of this attention has been devoted to eliminating or minimizing the effects of malfunctions of internal components. But reactors can also suffer

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*externally
caused*

*disasters—for
example, their
radioactive
cores can be
damaged by
earthquakes or
by missiles
generated by
tornadoes.*

Earthquakes in

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*particular
will continue
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even to the
"peaceful
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*to be located
in those parts
of the world
that have a
history of
seismic
activity. It
was to
consider such
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was held. The conferees, who are leaders in this special and important field, gathered in Cambridge, Massachusetts, in spring 1969, to present the

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titles are
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to nuclear
reactors; they*

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thinking on
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engineering
(HFE) in the
design of the
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the basis for
human physical
and cognitive*

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*plants. It
applies to
application of
HFE in the
design,
operation and
maintenance of
the HMI for
new plants, as
well as for*

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Pt. 16, Pt. 1.

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journey from the
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reactors,
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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

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yourself!**

*This book
describes the
fast reactor
(FR), a type of
new reactor for
nuclear plants,
currently under
research and
development. The
book targets
young
researchers and*

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*engineers who
will be charged
with
commercializing
this new type of
reactor to lead
to the
development of
new components
and systems for
improved plant
reliability and
economy. This
volume also*

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helps readers to understand the methods of integrating the power plant in its entirety, from the reactor core to all of the various systems and components, and teaches the way of thinking that forms the

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*background of
these methods.*

*This background
includes the
various
organizational
and management
issues that are
encountered as
projects move
forward and will
be explored in
great detail
based on actual*

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*This book
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design and
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*nuclear power
utilization and
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methods over the
past 40 years,
covering core
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as well as fast
reactors and
high-temperature*

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students to
understand core
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together with
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