Petroleum Science and Technology Petroleum Geoscientists for Exploration and Production/Introduction to Petroleum Geology, Exploration, Drilling, and Production Engineering for Petroleum Engineers

Introduction Petroleum Engineering | 40978ee526af3662189aea155617f6

Fundamentals of Petroleum Engineering: The need for this book has arisen from demand for a current text from our students in Petroleum Engineering at Imperial College and from post-experience Short Course.

Petroleum Science and Technology Petroleum geochemistry is increasingly challenging due to the inherent scarcity and decreasing number of global petroleum resources. Exploiting these resources efficiently will require engineers, scientists, and other practitioners to develop innovative mathematical solutions to serve as basic for new and advanced development drilling. Defining these systems in complex rock- and fluid-rich environments is critical to the future success and efficiency of the petroleum industry. Multiphysics modeling has been widely adopted in the petroleum industry since the 1990s. The rapid development of computer technology has enabled the numerical applications of multiphysics modeling in the petroleum industry. Its applications are particularly for the simulation of drilling and completion processes, including the formation of various subsurface regions, lead to the modeling of basic petrophysical, liquid- and pressure-related behavior. Integrate all component models, produce reports, and generate results data are presented as supporting material which can be used as the output of the workflows. Publishers can readily understand key modeling techniques with the help of multiphysics embedded in examples and can use the data to reproduce the results presented. This book would be of interest to any student, academic or professional practitioner of engineering, mathematics and natural sciences involved in the petroleum professionals and academics working in civil engineering, petroleum engineering and petroleum geosciences would find the work specially relevant to their endeavors.

Petroleum Science and Technology Modern petroleum and petrochemical engineering is increasingly challenging due to the inherent scarcity and decreasing number of global petroleum resources. Exploiting these resources efficiently will require engineers, scientists, and other practitioners to develop innovative mathematical solutions to serve as basic for new and advanced development drilling. Defining these systems in complex rock- and fluid-rich environments is critical to the future success and efficiency of the petroleum industry. Multiphysics modeling has been widely adopted in the petroleum industry since the 1990s. The rapid development of computer technology has enabled the numerical applications of multiphysics modeling in the petroleum industry. Its applications are particularly for the simulation of drilling and completion processes, including the formation of various subsurface regions, lead to the modeling of basic petrophysical, liquid- and pressure-related behavior. Integrate all component models, produce reports, and generate results data are presented as supporting material which can be used as the output of the workflows. Publishers can readily understand key modeling techniques with the help of multiphysics embedded in examples and can use the data to reproduce the results presented. This book would be of interest to any student, academic or professional practitioner of engineering, mathematics and natural sciences involved in the petroleum professionals and academics working in civil engineering, petroleum engineering and petroleum geosciences would find the work specially relevant to their endeavors.
Introduction to Petroleum Economics unravels the decision-making behind why a petroleum project moves ahead or ends.

Elements of Petroleum Geology This book shares the technical knowhow in the field of health, safety and environmental management, as applied to oil and gas industries and explains concepts through a simple and straightforward approach. Provides an overview of health, safety and environmental (HSE) management as applied to offshore and petroleum engineering. Covers the fundamentals of HSE and demonstrates its practical application including industry case studies and examples based on the author’s experiences in both academia and oil and gas industries. Presents recent research results. Includes tutorials and exercises.

Introduction to Petroleum Exploration and Engineering The branch of engineering which deals with the processes related to the production of hydrocarbons is known as petroleum engineering. These hydrocarbons could either be in the form of natural gas or crude oil. Petroleum engineering focuses on estimating the volume of hydrocarbon reservoir which can be recovered. This is done with the help of a detailed understanding of the physical behavior of water, oil, and gas within porous rock at intense pressure. Some of the sub-disciplines of petroleum engineering are reservoir engineering, drilling engineering and petroleum production engineering. There are various other disciplines, which contribute knowledge to this field such as formation, evaluation, economics and artificial lift systems. Petroleum engineering is an upcoming field of science that has undergone rapid development over the past few decades. This book is a valuable compilation of topics, ranging from the basic to the most complex advancements in this field. It will serve as a valuable source of reference for graduate and postgraduate students.

Petroleum Microbiology This book covers the fundamentals of the earth sciences and examines their role in controlling the global occurrence and distribution of hydrocarbon resources. It explains the principles, practices and the terminology associated with the upstream sector of the oil industry. Key topics include a look at the elements and processes involved in the generation and accumulation of hydrocarbons and demonstration of how geological and geophysical techniques can be applied to explore for oil and gas. There is detailed investigation into the nature and chemical composition of petroleum, and of surface and subsurface maps, including their construction and uses in upstream operations. Other topics include well logging techniques and their use in determining rock and fluid properties, definitions and classification of resources and reserves, conventional oil and gas reserves, their quantification and global distribution as well as unconventional hydrocarbons, their worldwide occurrence and the resources potentially associated with them. Finally, practical analysis is concentrated on the play concept, play maps, and the construction of petroleum events charts and quantification of risk in exploration ventures. As the first volume in the Imperial College Lectures in Petroleum Engineering, and based on a lecture series in the same topic, An Introduction to Petroleum Geoscience provides the introductory information needed for students of the earth sciences, petroleum engineering, and geoscience. This volume also includes an introduction to the series by Martin Blunt and Alain Gringarten, of Imperial College London.

Introduction to Petroleum Exploration for Non-geologists Once a natural gas or oil well is drilled, and it has been verified that commercially viable, it must be “completed” to allow for the flow of petroleum or natural gas out of the formation and up to the surface. This process includes casing, pressure and temperature evaluation, and the proper installation of equipment to ensure an efficient flow out of the well. In recent years, these processes have been greatly enhanced by new technologies. Advanced Well Completion Engineering summarizes and explains these advances while providing expert advice for deploying these new breakthrough engineering systems. The book has two themes: one, the idea of preventing damage, and preventing formation from drilling into an oil or gas formation; putting the well introduction stage; and two, the utilization of nodal system analysis method, which optimizes the pressure distribution from reservoir to wellhead, and plays the sensitivity analysis to design the tubing diameters first and then the production casing size, so as to achieve whole system optimization. With this book, drilling and production engineers should be able to improve operational efficiency by applying the latest state of the art technology in all facets of well completion during development drilling, completion, and workover operations. One of the only books devoted to the key technologies for all major aspects of advanced well completion activities based on 25 years in the exploration, production and completion industry. Matchless in-depth technical advice for achieving operational excellence with advanced solutions.