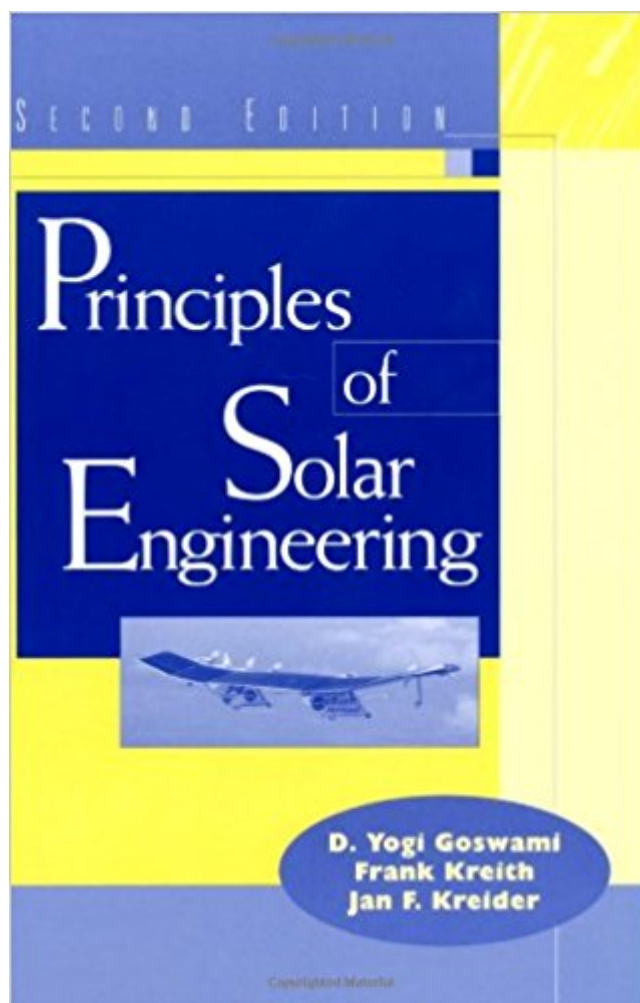


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Principles Of Solar Engineering, Second Edition



Synopsis

This second edition of Principles of Solar Engineering covers the latest developments in a broad range of topics of interest to students and professionals interested in solar energy applications. With the scientific fundamentals included, the book covers important areas such as heating and cooling, passive solar applications, detoxification and biomass energy conversion. This comprehensive textbook provides examples of methods of solar engineering from around the world and includes examples, solutions and data applicable to international solar energy issues. A solutions manual is available to qualified instructors.

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Including scientific fundamentals as well as recent developments in solar energy applications, this comprehensive book covers a broad range of topics interest to students and professionals. This edition deals with areas such as heating and cooling, passive solar applications, detoxification, and biomass energy conversion. This textbook provides examples of methods of solar engineering from around the world and includes examples, solutions, and data applicable to international solar energy issues..#150;Mechanical Engineering, July 2001

This book carefully derives the formulas for a wide variety of solar applications. The trig formulas are not derived but to do so would require a whole separate textbook. A fair amount of background is needed to digest the material presented. The figures and diagrams are a good supplement. There

are typos, so one should know how the material is derived, and not just use it blindly. Overall, its one of a kind in its field. David Collins

For the first time since the Carter administration, there has been renewed interest in the engineering of systems powered by renewable energy, and this is one of the better books out there, written, oddly enough, when gas was under a \$1 a gallon here in the U.S. This book fills a needed gap in the middle ground between popular science books on the subject and unreadable academic treatises written by Ph.D's driven to "publish or perish". The book's objective is to present the basic technical background needed for the design and economic analysis of solar energy utilization systems. It is assumed that the reader already knows thermodynamics, basic heat transfer, fluid mechanics, calculus, ordinary differential equations, and some chemistry. In other words, the target reader is at least a junior level undergraduate ME student. Design and analysis of solar utilization schemes are approached from a systems analysis viewpoint. That is, it is assumed that you are an engineer with the tools available to do the job, now you just need to know how to assemble your solar energy system and what devices should be included in that assembly. Thus, this book is not concerned with proper doping of pn junctions to produce photovoltaic cells and other such information. This book combines technical design with economical analysis to give the reader a well-rounded view of what goes into the design of a solar utilization system. The technical emphasis far outweighs the economical, with only one chapter being dedicated to cost analysis. The authors have included engineering level detail for all included technologies. This book retains only about 20% of what was in the first edition. Features in this book include: * modern methods of solar resource assessment including satellite measurements * developments in concentrating solar thermal collectors * a chapter on methods for passive heating, cooling and daylighting * the latest developments in solar cooling and dehumidification * a thorough treatment of solar thermal power and industrial process heat * a chapter on photovoltaics with a thorough treatment of fundamentals, design applications and manufacturing * a chapter on solar photochemical applications * a chapter on capturing solar energy through biomass. Biomass describes the mass of all biological organisms, dead or alive, excluding biological mass that has been transformed by geological processes into substances such as coal or petroleum, and is expected to make a major global contribution in the future, for both stand-alone biomass power systems and hybrid solar-biomass power systems. The book makes heavy use of the web, referring students to detailed information found at various websites. However, since this book was written six years ago, many of those links may already be dead. The book contains many homework problems and was designed to be a textbook in a course

on the subject. However, there are clear and numerous examples, so it might be possible for the motivated student to self-teach from this textbook. The only negative thing I can really say about the book is the high price. However, it is a good sign that even used copies of this textbook sell for a high price, because it shows the value current owners of the book place on it.

This book is full of mistakes that make it very difficult for students to learn. Teachers may catch them, but they are incredibly confusing for someone who is not familiar with the material. Many of the equations are even missing brackets or parentheses that are vital in fully defining the equation. The editor of this textbook did not do a good job to say the least.

very good book for a people that want to know the improvement of solar energy possibilities

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