

# Preface

This book is an easy to use instructional aide. No two instructors will use it the same way! Explore sustainability issues in contemporary society through a transdisciplinary approach. Chapters include ethics, public resources, public policy, combustion, heat exchangers, nuclear, solar, water, and wind energy. A short summary is presented for each topic, followed by additional topics for research, assignments, and references. The complex assignments require students to grow in their professional judgment.

Challenging assignments lead to a broader understanding of the impact of engineering solutions in an economic, environmental, global, and societal context. Case studies are intended to be worked in groups and debated in class. Students are encouraged to research materials outside their disciplines to address problems they may encounter after graduation. Students are expected to rely on peer-reviewed scientific references for their opinions so that if challenged they can defend their positions.

Use interdisciplinary teams to resolve realistic case studies, and then debate these complex issues to determine which solutions are truly sustainable. Topics for debate were chosen specifically to allow the students to synthesize the information gleaned during their research. Discussions should include an analysis of the available raw materials, competing land uses, public policy, waste disposal, and energy demand.

It is assumed that each student is capable of performing a literature search. The answers to the assignments are not included in this text; some questions have no “right” answer. Many require students to become familiar with their local environment. Other questions are entirely open-ended. Students are expected to submit reports after conducting a review of the available literature. Students are encouraged to keep an open mind and to evaluate each topic objectively.

Science is never settled. The research of tomorrow may change our understanding of the world by unlocking new possibilities. New technology may transform the energy markets. May the quest never end!

The Ethics of Energy Sustainability

An energy ethics workbook

Heckel, P.

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