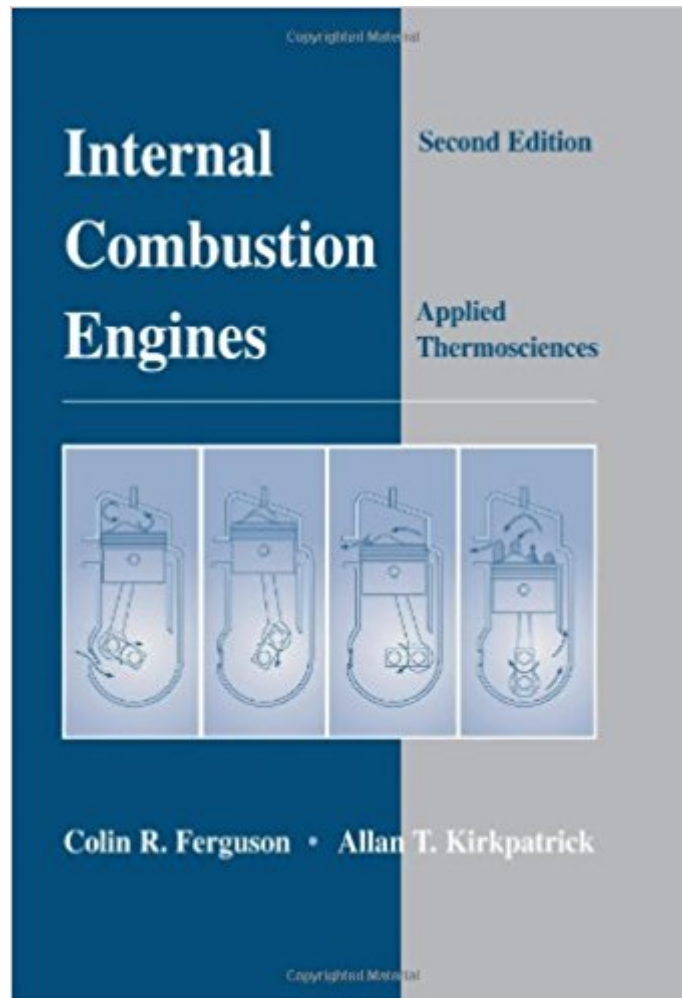




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# Internal Combustion Engines: Applied Thermosciences



## Synopsis

This book presents a modern approach to the study of internal combustion engines! Building upon the foundation of the first edition, the book has been completely revised, with each chapter reorganized and updated. The purpose of the book is to apply the principles of thermodynamics, fluid mechanics, and heat transfer to the analysis of internal combustion engines. The text also features modern web-based computational methods.

## Book Information

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## Customer Reviews

Focusing on thermodynamic analysis--from the requisite first law to more sophisticated applications--and engine design, here is a modern introduction to internal combustion engines and their mechanics. It covers the many types of internal combustion engines, including spark ignition, compression ignition, and stratified charge engines, and examines processes, keeping equations of state simple by assuming constant specific heats. Equations are limited to heat engines and later applied to combustion engines. Topics include realistic equations of state, stoichiometry, predictions of chemical equilibrium, engine performance criteria, and friction, which is discussed in terms of the hydrodynamic theory of lubrication and experimental methods such as dimensional analysis. --This text refers to an out of print or unavailable edition of this title.

THE PRINCIPLES OF THERMODYNAMICS, FLUID MECHANICS, AND HEAT TRANSFER  
APPLIED TO INTERNAL COMBUSTION ENGINES. This completely revised text applies the

principles of thermodynamics, fluid mechanics, and heat transfer to internal combustion engines. Every chapter has been reorganized and updated to clearly present current modeling and analysis techniques. The Second Edition includes new material on thermodynamic modeling, intake and exhaust flow, friction, combustion, alternative fuels, emissions, and instrumentation. The book contains many worked examples that illustrate important aspects of internal combustion engines.

**WHAT'S NEW IN THIS EDITION**    • Up-to-date discussion of new engine technologies exposes readers to current engineering practice.    Java based applets for computation of engine thermodynamics, friction, and heat transfer are available on the book's web site.    Numerous worked examples and homework problems for student assignment.    Up-to-date literature references in each chapter provide a resource for further study.    New photos and figures show modern engine components and engine performance.

I had to buy this book for a class. First the positive aspects of this book. It's somewhat recent (2001), which makes it at least a decade newer than • Internal Combustion Engine Fundamentals • (Heywood) and • The Internal Combustion Engine in Theory and Practice: Vol. 1 - 2nd Edition, Revised: Thermodynamics, Fluid Flow, Performance • and • Internal Combustion Engine in Theory and Practice: Vol. 2 - 2nd Edition, Revised: Combustion, Fuels, Materials, Design • (the Taylor books). It has more information about computer modeling, which is a reflection of the times. It also has references to the publisher's website to use various online tools and references, which I don't like at all, but someone probably likes. Now the negative: First; its main advantage, which is that it's new, isn't much of one. The only things that have changed appreciably in engines in the last 50 years are metallurgy and controls, neither of which are addressed in this book. For the price of this book, one could buy either Heywood or the Taylor set, both of which are much more detailed. The page counts are a clue; this book weighs in at under 400 pages, while Heywood is 900 and the Taylor set is over a thousand. This book frequently references Heywood and Taylor, so why not go straight to the source? This book, as other reviewers have noted, has extensive errata. If you don't like to proofread textbooks, buy Heywood or Taylor. In sum, don't buy this book, but if it's a gift, probably don't throw it out.

There aren't many books about internal combustion engines so this may be the best book for your money. The information in the book is good but sometimes uses conventions that are more confusing than helpful. The book mostly just needs to be updated. It's a good reference to put on your shelf.

I am using this book for my internal combustion engines course. Very good book but could use an update for more recent engine techs. Will give a great background to gas and diesels 4 and 2 strokes. Gets into the science of these engines.

This book contains a lot of detailed information on engines, turbos, and their components. Coupled with a great instructor, you will get a lot out of this book.

I'm using this book for my graduate class and i wish there were more examples. For some of homework questions, I don't even know where to begin.

Very helpful text on ICEs. Some very good example problems and explanations of what can be a confusing topic.

Great book. Easy to read through. Chapters are short and concentrate on only one subject at a time. Some of the derivations are left to the student/reader so if you do not already have a thermo book investing in one is a good idea. Overall, great text.

This book lacks example problems and has an errata almost as thick as itself. Poorly explained topics complete this debacle.

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