

Engines: An Introduction

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Abstrak

The internal combustion engine that powers the modern automobile has changed very little from its initial design of some eighty years ago. Unlike many high tech advances, engine design still depends on an understanding of basic fluid mechanics and thermodynamics. This text offers a fresh approach to the study of engines, with an emphasis on design and on fluid dynamics. Professor Lumley, a renowned fluid dynamicist, provides a lucid explanation of how air and fuel are mixed, how they get into the engine, what happens to them there, and how they get out again. Particular attention is given to the complex issue of pollution. Examples are taken from the early days of engine design, as well as the latest designs, such as stratified charge gasoline direct injection engines. It is intended that the text be used in conjunction with the Stanford Engine Simulation Program (ESP). This user-friendly, interactive software tool answers a significant need not addressed by other texts on engines.