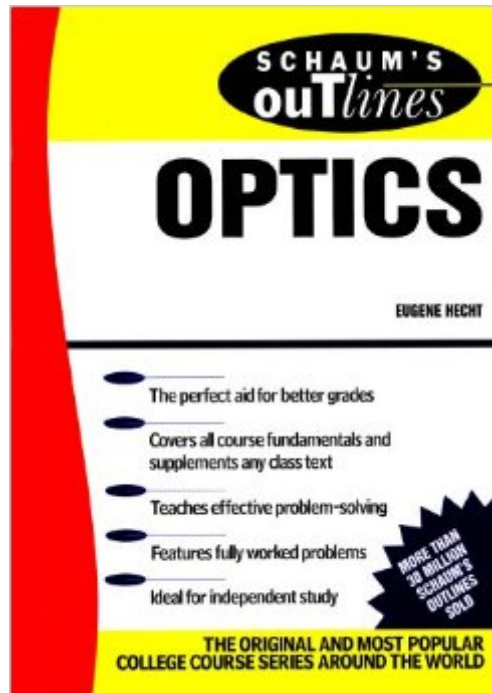


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# Schaum's Outline Of Optics (Schaum's Outlines)



## Synopsis

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## Customer Reviews

Hecht is one of the premier instructors and authors on the subject of optics and his contribution to Schaum's is no exception! I used this book to teach myself the fundamentals of optics while working in an applied physics laboratory. Very clearly presented material

This Schaum's outline is better than the expensive textbook by the same author on the same subject in many ways, and in my opinion stands alone as a guide on optics. It gets to the meat of optics via solving problems that range from simple to difficult, which is particularly attractive to engineers learning or reviewing this subject. To me, the only chapters that seemed a bit confusing were the first two on wave motion and on electromagnetic waves and photons. For that material you may need to consult another source. From that point onward, however, the outline couldn't be any better. The outline even has a chapter that introduces Fourier optics. This outline would make an excellent review or supplement for someone taking a course in Photonics that uses Saleh's "Fundamentals of Photonics". That textbook has virtually no solved problems in it whatsoever, and the first third of the book follows the material covered in this outline nicely.

I used this book as a supplement for a course in Physical Optics, mainly to get practice in solving problems. I found the chapters on Polarization and Diffraction very useful. This book helped me get a better grade in this course. This book does not cover the topics like Jones and Coherence Matrix and Stokes vector. However these topics are covered well in the same author's Optics text. BTW, The Optics text is also very good. Solving problems in this book and then approaching the text gives a much better understanding of Optics. This book does not cover Poincare' sphere, which is also an important topic for which we cant find material anywhere except our Professor's lecture notes. Overall, this book is a must if you are taking any Optics course or the GRE physics text or if you just want to master the basics of Optics.

I bought Theory and Problems of Optics to familiarize myself with beginning optics and Fourier series. I rate it high because all the problems are solved, which makes it much easier to figure out things that one doesn't understand at first. (My hobby horse --- I don't understand why mathematicians think one can't learn unless the answers are withheld.) I agree with the reviewer who found the first two chapters confusing. I think this is partly because the notation is introduced haphazardly and not well explained. I would have found a list such as the following to be helpful. Small initial letters in Greek letter names indicate lower case Greek letters. Upsilon and phi are the curly forms.  $k$  is the propagation number,  $2\pi/\lambda$ .  $\lambda$  is the wave length or spatial period.  $\tau$

is the temporal period,  $\lambda / v$  or  $1/\nu$ .  $\nu$  is the frequency, number of waves per unit time, usually Hz.  $\omega$  is the angular frequency,  $2\pi/\tau$ , radians per sec.  $v$  (easily confused with  $\nu$ ) is the speed of propagation or phase velocity.  $\phi$  is the phase, argument of the sine function;  $\phi = kx -/+ \omega t$   $t$  is time  $\epsilon$  is initial phase;  $\phi = kx -/+ \omega t + \epsilon$  Confusion may also arise from the fact that the functions in the first two chapters contain variables for both space ( $x$ ) and time ( $t$ ). More explanation of why might have helped, but one can plot the functions on these variables to determine their meaning.

In short: as one would expect from Schaum. In some details: optics well separated in chapters, chapters well covered with examples and exercises of different difficultness. Excellent introductory handbook for optics.

This is a perfect supplement to the Optics book by Hecht. Taking a senior optics class at UTD and the schaums book had some really good key examples to help with HW, concepts in general. Highly recommended

This book did not work for me as my professor was teaching wave optics exclusively. From what I can tell this book is good for geometrical optics.

This is a great book for somebody who wants to learn basics and get a feeling about optics. Helped me with the exam too.

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