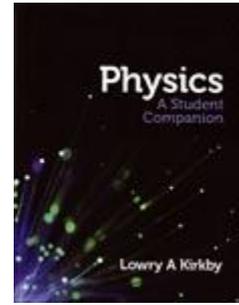


Physics: A Student Companion

By Lowry Kirkby

Scion Publishing Ltd

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Lowry Kirkby once turned down an offer to study physics at Manchester University and instead went to Oxford. This was Manchester's loss; she was clearly a model student, assiduous in producing, collating and annotating her lecture notes and using them to help her graduate with a top first-class degree in 2007. She has now turned these notes into a "student companion".

As companions go, this is an excellent one and it should become a best friend to all physics undergraduates, particularly in those important, lonely weeks of study in the run-up to examinations. I encourage all lecturers to recommend this book to their students.

Lowry covers the bulk of the core physics required in degree programmes accredited by the Institute of Physics in the UK and most of the syllabus for the Graduate Record Examination in the US. This includes Newtonian mechanics and special relativity; electromagnetism; waves and optics; quantum physics; and thermal physics. These are taken to about the end of the second year of university study for a student majoring in physics. So, for example, the material goes as far as Fraunhofer diffraction in wave-optics, time-independent perturbation theory in quantum mechanics and the grand canonical partition function in statistical mechanics.

Clearly a single, relatively slim volume such as this (400 pages) cannot serve as a textbook for all these topics. But that is not its intention; it is meant as a supplement to the textbooks, a digest for students who have already studied and understood the details.

There are five aspects to the presentation of the material, which can be described as: commentary, summaries, boxed equations, derivations and worked examples. It all sits together very well indeed as a single-volume study aid. In a book with so much detail and so many equations, I found remarkably few errors or misprints. The author, proofreaders and editor are to be commended on the high standards of the production.

Do physics students still have bookshelves? If they do, then this book should have a place on all of them. But smart phones, tablets and e-readers now seem to be the preferred media. While the book is reasonably portable, an e-version would be just the sort of thing that today's physics students would always want to have to hand.

• *George Lafferty, Manchester University.*

My Background: I just registered late for the PGRE this April and I have done no studying yet. I'm going to try and do as much as possible before the test, but I'm taking an overload this semester in exclusively 400 level (upper division) math/physics/astronomy courses, so we'll see how that goes (point being time is limited and I will want to use only books worthwhile). I have taken one practice GRE and got ~50% of the questions right, being cold without any review of materials I took 1-2 years ago (EM & classical mech mostly). It was kind of disheartening since I thought I