

Understanding Physics Part 2



Subject area

General Physics.

Description

An introductory undergraduate text covering elasticity and equilibrium, gravitation, fluids, waves and oscillations and thermodynamics. Calculus is used throughout the text.

Authors

Karen Cummings, Priscilla W. Laws, Edward F. Redish and Patrick J. Cooney.

Publishers/Suppliers

John Wiley & Sons, Inc. John Wiley and Sons, Ltd. (www.wiley.co.uk).

Date/Edition

2002/Preliminary Edition.

ISBN

0-471-39429-7.

Level

Undergraduate.

Price

£15.99. (www.amazon.co.uk).

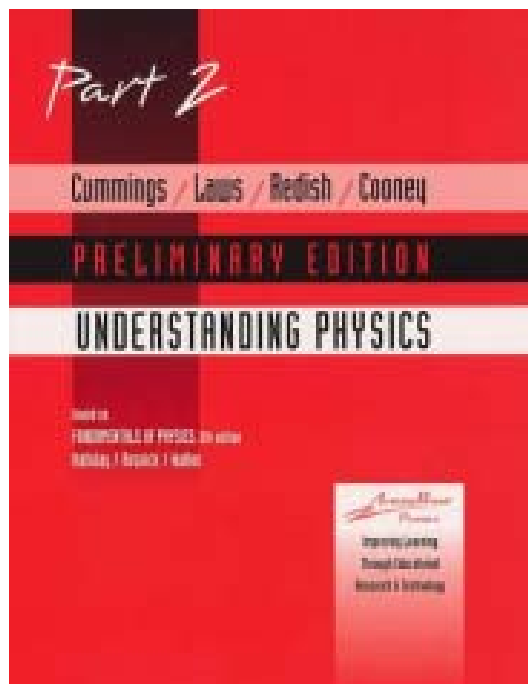
Gren Ireson
Matthew Arnold Building
Loughborough University
Loughborough
Leicestershire LE11 3TU
October 2002

Having reviewed Understanding Physics Part 1 (*Physical Sciences Educational Reviews* no. 4 June 2002) I looked forward to reviewing this text.

The text covers, at an introductory undergraduate level, equilibrium and elasticity, gravitation, fluids, oscillations, waves, kinetic theory of gases and thermodynamics, in nine chapters.

As with Part 1 this text is based on 'Halliday and Resnick' but also as with part 1 the narrative style and implementation of research into physics pedagogy soon become apparent.

The narrative is allowed to flow and illustrative exercises are placed at the end of the chapter under the collective title of 'Touchstone Examples'. Exercises suitable for student self-assessment are placed at the end of the book and these range from the 'gentle' to the 'more demanding'.



need to look closely at the student's mathematics background, the physics would not be a problem. The student would need to be conversant with, for example, double and half angles and the derivatives of trigonometric functions to make full use of the text.

My one complaint with part 1 was the quality of the diagrams and whilst they are again small in part 2 I did find the quality better, i.e. I did not have to rely on what I knew should be in the diagram.

For anyone wishing to integrate both data logging and calculus into an introductory course I would recommend this text. Foundation courses and/or service teaching courses, for example in technology, could also be well served by this text given suitable mathematics support.

Summary Review

range: * very poor to ***** excellent

Academic content	*****
Usefulness to student	*****
Usefulness to teacher	*****
Meets objectives	*****
Accuracy	*****

The reading exercises, continued from part 1, again serve to focus the reader on the key issues and to develop physics literacy.

Where appropriate the use of data logging is integrated into the text and this is done in such a way that it is not hardware specific.

Overall I enjoyed the approach taken by the authors and found the contexts used and the development of a calculus based description very clearly laid out. In terms of its suitability as a text which follows from AS and/or A2 one would