Textbook checklist

Title: Introduction to the Calculus of Variations
Authors: Bernard Dacorogna
Edition: Second
Publisher: Imperial College Press
Price: ???
ISBN: 978-1-84816-334-8

This is a text firmly aimed at graduate students in mathematics. The book is formal in style, which, after a short introduction, starts with a chapter on the definitions of function spaces, followed by the derivation of Euler-Lagrange equations and the Hamilton formulation. The next two chapters are devoted to the existence and the regularity of solutions, the final two to minimal surfaces and isoperimetric inequalities in 2 and then n dimensions. What distinguishes the book is that fully one quarter of it is devoted to the solutions of the large numbers of exercises that intersperse (and are often used to prove) the formal statements.

Aimed at: Postgraduate mathematicians wanting a formal approach to calculus of variations.

Presentation – layout and clarity:
Clearly laid out in a rigorous style, developing in a logical order.

Would you recommend it?
Yes, for the target audience cited above. It is not suitable for use as an undergraduate text, at least in the UK.

149 words (excluding section headings).