FOUNDATION SCIENCE FOR ENGINEERS

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Keith L. Watson

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PREFACE

This book has been written for students without science A-levels who are entering an engineering degree or Higher National Diploma course via a foundation year. Very little scientific background is assumed and only an elementary knowledge of mathematics, which need extend no further than the simple properties of the right-angled triangle. Calculus is not required.

The book is divided into three parts, which may be taken either in series or in parallel. Emphasis has been placed on clarity and crispness of presentation, and on the provision of appropriate worked examples and practice questions. (The data supplied are approximate and are for illustrative purposes only.)

I have selected those topics which seem to me to provide the essential core material for any engineering foundation course. Practical work is not covered: the inclusion of instructions for safe and effective laboratory exercises over the whole range of topics would have lengthened the book considerably, and, furthermore, the needs of individual courses and the resources of individual institutions tend to determine their particular selection of specific exercises.

I am indebted to many colleagues here at Portsmouth for advice and comments on various parts of the manuscript; in particular, I should like to thank Dr Ray Batt, Professor Trevor Crabb, Michael Devane, Derek Hunter, Dr Tom Nevell, Bob Otter, Ron Parvin and Vic Riches — also Professor Brian Lee for his support. I am especially grateful to Kerry Lawrence of The Macmillan Press for her patience and encouragement, and to Professor John Wilson of the University of Northumbria at Newcastle, who reviewed the manuscript and made many helpful suggestions. Last, but not least, I thank my wife for her powers of endurance.

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KLW