PROPERTIES OF ENGINEERING MATERIALS

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Theory, worked examples and problems

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PREFACE

A knowledge of the properties of engineering materials is crucial to the safe design and performance of components in service. The subject has, however, not often been treated in a manner which lends itself to easy solutions of problems by undergraduate students. The purpose of this book is to illustrate, in a concise form, the basis of the properties of engineering materials and hence to aid problem-solution. For each topic covered, the format consists of a presentation of the relevant theory in a compact fashion, omitting the wider treatment, followed by a number of worked examples and problems for the reader to solve on his own.

The main reason for this approach is that there are well-written textbooks available which the student can consult for both background material and detailed exposition. This book therefore assumes some basic knowledge of the subject and should be used in conjunction with such textbooks as are listed in appendix I.

I wish to express my thanks to the Senates of the Universities of London, Cambridge and Nottingham for permission to reproduce questions from their past examination papers. The range of questions presented here will make the book useful to all levels of technical college, polytechnic and undergraduate university students. I alone am responsible for the solutions and for the unacknowledged questions.

GLADIUS LEWIS