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978-1-316-61190-6 - An Introduction to Engineering Mathematics

D. McMullin and A. C. Parkinson

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# AN INTRODUCTION TO ENGINEERING MATHEMATICS

by

D. McMULLIN, B.A.,

Sometime Examiner to the Surrey Higher Education Committee

and

A. C. PARKINSON, A.C.P. (Hons.), F.Coll.H.,

Author of “Intermediate Engineering Drawing”, “Engineering  
Workshop Drawing”, “First Year Engineering Drawing”

*Lecturers in the Technical College,  
Kingston-upon-Thames*

CAMBRIDGE  
AT THE UNIVERSITY PRESS  
1936

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**CAMBRIDGE**  
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9781316611906](http://www.cambridge.org/9781316611906)

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First published 1936

First paperback edition 2016

*A catalogue record for this publication is available from the British Library*

ISBN 978-1-316-61190-6 Paperback

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## PREFACE

This book is intended primarily for the use of students of Practical Mathematics in so far as it comprises a subject taken in the first year of the senior technical courses, established in Technical Colleges and Institutes.

The syllabuses prescribed in different areas are not precisely alike in scope and standard. We have endeavoured, therefore, with the kind assistance of several experienced colleagues, in different parts of the country, to establish an L.C.M. of general requirement as to syllabus content. It is hoped that, in relation to space available, the range of subject matter will prove adequate to the main purpose of the book. As an example, mention may be made of the inclusion of quadratic equations, which appear in some first-year examination papers.

This book has a reasonably practical bias. Technical students having daily contact with things of practical significance are apt to become impatient of purely academic study—desiring above all to relate principles to practice, to express the academic in terms of direct utility. At the same time, however, their practical work is usually so briefly specialised that, in our view, technical allusions and practical problems beyond their range of experience tend to defeat their own object. With this in mind we have endeavoured to draw from a long aggregate experience in engineering and teaching, and to give expression to this experience, in a sanely balanced course in the groundwork of mathematics, which will enable a student to retain easy contact with the pure mathematics of his pre-technical studies and yet find a sufficiency of generally understood technical allusions, illustrations, and graded applications to awaken interest, and enliven endeavour.

The leading geometrical propositions commonly included in the syllabuses have been mentioned, together with a sufficiency

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of practical verifications or brief deductive proofs. Modern tendency appears to favour an extension of the time spent in deductive geometry, the value of which, in comparison with the slipshod empiricism which often arises from undue dependence upon graphical verifications, cannot be overlooked. Nevertheless, our experience is that, so far as evening classes are concerned, the available time is insufficient for much greater elaboration of this branch of the work. We have aimed at logical sequence of leading theorems, clear deductions and concise, practical applications.

The ground covered also includes the work taken in Junior Technical Schools in Practical Mathematics during the first and second years.

Thanks are tendered to the following for ready and courteous permission to reprint questions set in examinations: Northern Counties Technical Examinations Council; Union of Educational Institutions; City and Guilds of London Institute; Royal Society of Arts; Surrey Education Committee; H.M. Stationery Office.

D. McMULLIN

A. C. PARKINSON

*April 1936*

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