

A SHORT COURSE ON DIFFERENTIAL EQUATIONS

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A Short Course on Differential Equations by Donald Francis Campbell

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DONALD FRANCIS CAMPBELL

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•The M Co.

A SHORT COURSE ON
DIFFERENTIAL EQUATIONS

BY

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PREFACE

In many Colleges of Engineering, the need is felt for a text-book on Differential Equations, limited in scope yet comprehensive enough to furnish the student of engineering with sufficient information to enable him to deal intelligently with any differential equation which he is likely to encounter. To meet this need is the object of this book.

Throughout the book, I have endeavored to confine myself strictly to those principles which are of interest to the student of engineering. In the selection of problems, the aim was constantly before me to choose only those that illustrate differential equations or mathematical principles which the engineer may meet in the practice of his profession.

I have consulted freely the Treatises on Differential Equations of Boole, Forsyth, Johnson, and Murray. I am indebted to two of my colleagues, Professors N. C. Riggs and C. W. Leigh, for reading parts of the manuscript and verifying many of the answers to problems.

D. F. CAMPBELL.

CHICAGO, ILL.,
September, 1906.

PREFACE TO ENLARGED EDITION

This book as it first appeared consisted of the first eight chapters as here given. The kindly criticism by a number of those teachers for whose use it was intended on the need of a discussion of equations, that occur in investigations in Mathematical Physics, other than those given in these chapters has induced me to add Chapter IX to the book.

In the preparation of Chapter IX., I have drawn freely from Professor Byerly's Treatise on Fourier's Series and Spherical Harmonics, from Professor Bocher's pamphlet entitled Regular Points of Linear Differential Equations of the Second Order and from notes kindly loaned me by Professor Snyder of Cornell University. I have also consulted Heffter's Treatise on Linear Differential Equations with one Independent Variable.

To those teachers who have sent me their criticism of the book in its original form, as well as to others who have cordially received it, I am under the deepest obligations.

D. F. CAMPBELL.

CHICAGO, ILL.,
June, 1907.

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