

The NUMERICAL SOLUTION of ELLIPTIC EQUATIONS

GARRETT BIRKHOFF
Harvard University

SOCIETY for INDUSTRIAL and APPLIED MATHEMATICS
PHILADELPHIA, PENNSYLVANIA 19103

THE NUMERICAL SOLUTION OF ELLIPTIC EQUATIONS

Contents

Acknowledgments	vii
Preface	ix
Lecture 1 TYPICAL ELLIPTIC PROBLEMS	1
Lecture 2 CLASSICAL ANALYSIS	11
Lecture 3 DIFFERENCE APPROXIMATIONS	19
Lecture 4 RELAXATION METHODS	29
Lecture 5 SEMI-ITERATIVE METHODS	39
Lecture 6 INTEGRAL EQUATION METHODS	47
Lecture 7 APPROXIMATION OF SMOOTH FUNCTIONS	55
Lecture 8 VARIATIONAL METHODS	63
Lecture 9 APPLICATIONS TO BOUNDARY VALUE PROBLEMS	73