

A GATEWAY TO MATHEMATICS

According to MG University Syllabus for
BSc (Hons) Mathematics 2nd Semester Major
and Minor Course Students

Partial
differentiation

$$\frac{\partial z}{\partial x}$$

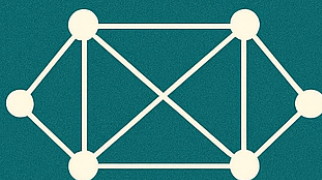
Integral
calculus

$$\int f(x)dx$$

Matrices

$$\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

Graph
theory



Dr. Sonia K Thomas • Dr. Sheena Mathew
Dr. Arya S • Dr. Julie Thomas

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(MG2DSCMAT100)

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Preface

This book, *A Gateway to Mathematics*, is prepared according to the Mahatma Gandhi University syllabus. It is designed for B.Sc. (Hons.) Mathematics **Second Semester Major and Minor course** students. It is designed to be classroom-friendly and self-contained, with clear explanations, worked examples, and problem sets aligned to the syllabus outcomes.

The four units—Partial Differentiation, Integral Calculus, Matrices, and Graph Theory—are structured to build conceptual understanding first and computational proficiency next. Worked out examples and additional problems to test the reader's grasp of the subject are given after each topic. These exercises have been selected to align strictly with the syllabus outcomes and university standards.

We do not claim any originality in the mathematical results, but the presentation of the subject matter is unique to this volume. We have referred to standard texts prescribed by the University to ensure accuracy.

The authors are indebted to the Management and Principal of **Alphonsa College Pala**, for their support. We also express our sincere gratitude to our colleagues and students, whose valuable feedback helped refine the presentation of this book.

As there is always scope for improvement, we welcome your valuable comments, suggestions for improvements, and indication of errors.

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A Gateway to Mathematics

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This volume provides a concise, syllabus-aligned introduction to Partial Differentiation, Integral Calculus, Matrices, and Graph Theory. With theorem–example–exercise flow and classroom-tested exposition, it supports both major and minor learners in mastering core concepts techniques.

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