

BOOK REVIEW

J. C. Mathews and C. E. Langenhop: "Discrete and Continuous Methods in Applied Mathematics", J. Wiley and Sons, New York, 1966, xiii + 525 p., price 83/-.

One may say that in applied mathematics two separate branches have been developed. The first starts from the continuous point of view and covers vector analysis, differential and integral equations and Fourier series. Knowledge of this field is required for many engineering students. The other takes the discrete point of view and deals with probability, statistics and linear algebra, subjects which are also very useful in economics, genetics, psychology, etc. In the present book a unification between these two branches has been contrived and also attained with considerable success.

The titles of the chapters are as follows:

- I Discrete probability.
- II Linear algebra.
- III Markov chains.
- IV Linear programming.
- V Capacitated transport networks.
- VI Ordinary differential equations.
- VII Systems of ordinary differential equations.
- VIII Stability of nonlinear differential equations.
- IX Stochastic processes.

Each chapter begins with familiarizing the reader with the subject by describing some concrete problem which can be solved by the theory of that chapter. Much attention is also paid to making a mathematical model of the problem at hand. After that, definitions are given, lemma's and theorems proved in such a way that a mathematically rigorous theory is developed using also the more abstract notations of pure mathematics. In their introduction the authors remark that "applied mathematics" ought to connote no less respect for logical rigor than "pure mathematics". They have kept this in mind when writing their book.

Although the authors claim that a course based on this book would ordinarily be given at the undergraduate level, this seems to hold for this country only as far as are concerned the chapters I, II, VI and VII. Due to the unusually detailed and clear explanations of the mathematical concepts and tools the book is also very suitable as a self-study text. Especially for these students specializing in operations research, all chapters of the book are extremely valuable.

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