

- **Part A Ordinary Differential Equations (Ode's)**
- **Chapter 1 First-Order ODE's**
- **Chapter 2 Second Order Linear ODE's**
- **Chapter 3 Higher Order Linear ODE's**
- **Chapter 4 Systems of ODE's Phase Plane, Qualitative Methods**
- **Chapter 5 Series Solutions of ODE's Special Functions**
- **Chapter 6 Laplace Transforms**
- **Part B Linear Algebra, Vector Calculus**
- **Chapter 7 Linear Algebra: Matrices, Vectors, Determinants: Linear Systems**
- **Chapter 8 Linear Algebra: Matrix Eigenvalue Problems**
- **Chapter 9 Vector Differential Calculus: Grad, Div, Curl**
- **Chapter 10 Vector Integral Calculus: Integral Theorems**
- **Part C Fourier Analysis, Partial Differential Equations**
- **Chapter 11 Fourier Series, Integrals, and Transforms**
- **Chapter 12 Partial Differential Equations (PDE 's)**
- **Chapter 13 Complex Numbers and Functions**
- **Chapter 14 Complex Integration**
- **Chapter 15 Power Series, Taylor Series**
- **Chapter 16 Laurent Series: Residue Integration**
- **Chapter 17 Conformal Mapping**
- **Chapter 18 Complex Analysis and Potential Theory**
- **Part E Numerical Analysis Software**
- **Chapter 19 Numerics in General**
- **Chapter 20 Numerical Linear Algebra**
- **Chapter 21 Numerics for ODE 's and PDE 's**
- **Part F Optimization, Graphs**
- **Chapter 22 Unconstrained Optimization: Linear Programming**
- **Chapter 23 Graphs, Combinatorial Optimization**
- **Part G Probability**
- **Statistics**
- **Chapter 24 Data Analysis**
- **Probability Theory**
- **Chapter 25 Mathematical Statistics**
- **Appendix 1 References**
- **Appendix 2 Answers to Odd-Numbered Problems**
- **Appendix 3 Auxiliary Material**
- **Appendix 4 Additional Proofs**
- **Appendix 5 Tables**
- **Index**