

Contents :

Front Matter

- Preface
- Introduction

1. Fundamentals of Power Systems

- Energy and Power
- Power Electronics
- Power Sources

2. Single-Phase Power Circuits

- Single-phase power circuits
- Prime power interface terminology
- Network configuration
- Power transformer characteristics
- Distribution system analysis
- Steady-state analysis program
- Systems with multiple sources

3. Three-Phase Power Circuits

- Balanced three-phase systems
- Conversion of three-phase networks
- Unbalanced three-phase circuits
- General-purpose analysis program
- Analysis of:
 - Wye-connected loads
 - Delta-connected loads
 - Composite loads
- High-voltage substitution methods

4. Transmission Line Analysis

- Long transmission lines
- Line equation development
- Power line system analysis
- RF transmission line systems
- Types of transmission lines
- Auxiliary elements

5. Fourier Analysis

- Fourier transformations
- Fourier series principles
- Tabular Fourier analysis

6. Power Supply & RF Systems

- DC power supply system analysis
- RF power-generating systems
- Modulating waveforms
- Functional block diagrams
- Power amplification devices
- Practical applications

7. Transient Analysis of Power Electronics Systems

- Transient analysis approaches
- Network building blocks
- Numerical integration methods
- Transient analysis of:
 - DC power supplies
 - Operational amplifiers
 - Bandpass amplifiers

8. Power Converters and Supplies

- DC power sources and inverters
- Single-phase center-tap full-wave rectifier
- Commutation considerations
- Single-phase bridge rectifier
- Three-phase bridge rectifier
- Twelve-pulse converter systems
- DC–DC power supply analysis

9. Programming and Computational Methods

- BASIC programming
- C language programming
- BASIC-to-C conversion techniques
- Engineering computation examples

10. Conclusion and References

- Concluding remarks
- Index