

Contents :

1. MATLAB Fundamentals

- Basic operations
- Matrix operations

2. Plotting Functions

- Graphical representation of data
- 2D/3D plots

3. Control Statements

- Loops and conditional statements
- Program control structures

4. DC Analysis

- Resistive circuits
- Nodal and mesh analysis

5. Transient Analysis

- Time-domain circuit response
- Capacitors and inductors behavior

6. AC Analysis and Network Functions

- Frequency response
- Transfer functions

7. Two-Port Networks

- Network parameters (Z , Y , h , $ABCD$)

8. Fourier Analysis

- Fourier series
- Signal decomposition

9. Diodes

- Diode characteristics
- Rectifier circuits
- Zener regulators

10. Semiconductor Physics

- Intrinsic and extrinsic semiconductors
- PN junction theory
- Capacitances and breakdown

11. Operational Amplifiers

- Op-amp properties
- Inverting / non-inverting amplifiers
- Frequency response

12. Transistor Circuits

- BJT and MOSFET
- Biasing techniques
- Amplifier analysis

13. Electronic Data Analysis

- Data processing in MATLAB
- Statistical analysis
- Curve fitting

□ Final Section

- Index