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Name of Publishing Agency/Publisher: 2023 978-93-93199-89-8

Book(BA) English (eng)

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1	Basic Electrical & Electronics Engineering	978-93-93199-89-8	Book	English	Amaravathi Publications	Author : K DURGA DEVI	27/10/2023

Name of Publishing Agency/Publisher

2023

978-93-92311-94-9

Book(BA)

English (eng)

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#	Book Title	ISBN	Product Form	Language	Name of Publishing Agency/Publisher	Name of Author/Editor	Publication Date
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Announcements

# Basic Electrical & Electronics Engineering

Mrs. K. Durga Devi



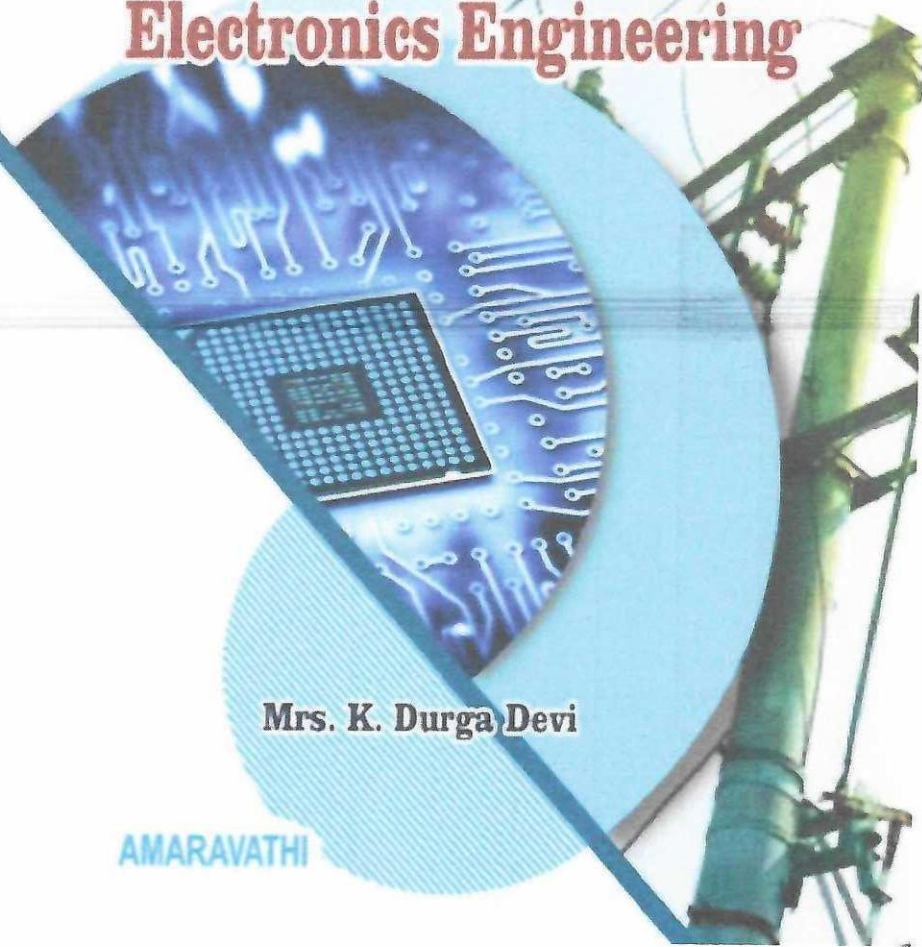
<b>Unit - 1</b> Number System LCM & HCF Fractions Decimals Percentages Profit and Loss Simple and Compound Interest Time and Work Speed and Distance Mixture and Allegation Averages	<b>Reasoning</b> 1. Analogy 2. Series 3. Classification 4. Coding & Decoding 5. Direction 6. Blood Relations 7. Matrix 8. Seating Arrangement 9. Family Relationships 10. Clock and Calendar 11. Direction and Distance 12. Probability 13. Logical Deduction 14. Logical Reasoning 15. Logical Arrangement 16. Logical Sequence 17. Logical Reasoning 18. Logical Reasoning 19. Logical Reasoning 20. Logical Reasoning 21. Logical Reasoning 22. Logical Reasoning 23. Logical Reasoning 24. Logical Reasoning 25. Logical Reasoning 26. Logical Reasoning 27. Logical Reasoning 28. Logical Reasoning 29. Logical Reasoning 30. Logical Reasoning	<b>Unit - 2 Grammar</b> 1. Nouns 2. Pronouns 3. Verbs 4. Adjectives 5. Adverbs 6. Prepositions 7. Conjunctions 8. Modals 9. Tenses 10. Direct and Indirect Speech 11. Active and Passive Voice 12. Question Tags 13. Reported Speech 14. Narration 15. Sentence Correction 16. Error Correction 17. Cloze Test 18. Reading Comprehension 19. Paragraph Completion 20. Paragraph Jumbling 21. Paragraph Ordering 22. Paragraph Summary 23. Paragraph Extension 24. Paragraph Revision 25. Paragraph Revision 26. Paragraph Revision 27. Paragraph Revision 28. Paragraph Revision 29. Paragraph Revision 30. Paragraph Revision	<b>Unit - 3 Grammar</b> 1. Nouns 2. Pronouns 3. Verbs 4. Adjectives 5. Adverbs 6. Prepositions 7. Conjunctions 8. Modals 9. Tenses 10. Direct and Indirect Speech 11. Active and Passive Voice 12. Question Tags 13. Reported Speech 14. Narration 15. Sentence Correction 16. Error Correction 17. Cloze Test 18. Reading Comprehension 19. Paragraph Completion 20. Paragraph Jumbling 21. Paragraph Ordering 22. Paragraph Summary 23. Paragraph Extension 24. Paragraph Revision 25. Paragraph Revision 26. Paragraph Revision 27. Paragraph Revision 28. Paragraph Revision 29. Paragraph Revision 30. Paragraph Revision

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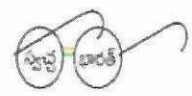
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# *Basic Electrical & Electronics Engineering*

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## **M/s Amaravathi Publishers, Hyderabad**

A Part of StudentsHelpline Publishing House (P) Ltd.  
(An ISO 9001 : 2015 Certified Company)

### **Head Office**

# 7-1-277/242, 1<sup>st</sup> Floor  
Near B K Guda Park, S R Nagar, Hyderabad - 500 038, INDIA  
P.No:+91 40 23710657, 238000657 Fax: +91 40 23810657

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# 5-68, Pedda Gorpada, Pakala, Tirupati, Chittoor - 517 112 AP, INDIA  
**mail:**studentshelpline.in@gmail.com  
**www:**studentshelpline.in

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**First Edition-2023**

**ISBN: 978-93-93199-89-8**

**Rs. 730/-**

*Printed at StudentsHelpline Group, S R Nagar, Hyderabad-38  
Published by Surneni Mohan Naidu for Amaravathi Publishers, Hyderabad - 38*



## *Basic Electrical & Electronics Engineering*

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### **Course Outcomes**

1. Remember the fundamental laws, operating principles of motors, generators, MC and MI instruments.
2. Understand the problem solving concepts associated to AC and DC circuits, construction and operation of AC and DC machines, measuring instruments; different power generation mechanisms, Electricity billing concept and important safety measures related to electrical operations.
3. Apply mathematical tools and fundamental concepts to derive various equations related to machines, circuits and measuring instruments; electricity bill calculations and layout representation of electrical power systems.
4. Analyze different electrical circuits, performance of machines and measuring instruments.
5. Evaluate different circuit configurations, Machine performance and Power systems operation.

### **Part-A: Basic Electrical Engineering**

#### **Unit-I: DC & AC Circuits**

**DC Circuits:** Electrical circuit elements (R, L and C), Ohm's Law and its limitations, KCL & KVL, series, parallel, series-parallel circuits, Super Position theorem, Simple numerical problems.

**AC Circuits:** A.C. Fundamentals: Equation of AC Voltage and current, waveform, time period, frequency, amplitude, phase, phase difference, average value, RMS value, form factor, peak factor, Voltage and current relationship with phasor diagrams in R, L, and C circuits, Concept of Impedance, Active power, reactive power and apparent power, Concept of power factor (Simple Numerical problems).

#### **Unit-II: Machines and Measuring Instruments**

**Machines:** Construction, principle and operation of (i) DC Motor, (ii) DC Generator, (iii) Single Phase Transformer, (iv) Three Phase Induction Motor and (v) Alternator, Applications of electrical machines.

**Measuring Instruments:** Construction and working principle of Permanent Magnet Moving Coil (PMMC), Moving Iron (MI) Instruments and Wheat Stone bridge.

#### **Unit-III: Energy Resources, Electricity Bill & Safety Measures**

**Energy Resources:** Conventional and non-conventional energy resources; Layout and operation of various Power Generation systems: Hydel, Nuclear, Solar & Wind power generation.

**Electricity bill:** Power rating of household appliances including air conditioners, PCs, Laptops, Printers, etc. Definition of "unit" used for consumption of electrical energy, two-part electricity tariff, calculation of electricity bill for domestic consumers.

**Equipment Safety Measures:** Working principle of Fuse and Miniature circuit breaker (MCB), merits and demerits. Personal safety measures: Electric Shock, Earthing and its types, Safety Precautions to avoid shock.

## **Part-B: Basic Electronics Engineering**

### **Course Outcomes**

1. Apply the concept of science and mathematics to understand the working of diodes, transistors, and their applications.
2. Explain the characteristics of diodes and transistors.
3. Familiarize with the number systems, codes, Boolean algebra and logic gates.
4. Understand the working mechanism of different combinational, sequential circuits and their role in the digital systems.

### **Unit-I: Semiconductor Devices**

Introduction - Evolution of electronics – Vacuum tubes to nano electronics - Characteristics of PN Junction Diode - Zener Effect - Zener Diode and its Characteristics. Bipolar Junction Transistor - CB, CE, CC Configurations and Characteristics - Elementary Treatment of Small Signal CE Amplifier.

### **Unit-II: Basic Electronic Circuits and Instrumentation**

Rectifiers and power supplies: Block diagram description of a dc power supply, working of a full wave bridge rectifier, capacitor filter (no analysis), working of simple zener voltage regulator. Amplifiers: Block diagram of Public Address system, Circuit diagram and working of common emitter (RC coupled) amplifier with its frequency response. Electronic Instrumentation: Block diagram of an electronic instrumentation system.

### **Unit-III: Digital Electronics**

Overview of Number Systems, Logic gates including Universal Gates, BCD codes, Excess-3 code, Gray code, Hamming code. Boolean Algebra, Basic Theorems and properties of Boolean Algebra, Truth Tables and Functionality of Logic Gates – NOT, OR, AND, NOR, NAND, XOR and XNOR. Simple combinational circuits–Half and Full Adder, Introduction to sequential circuits, Flip flops, Registers and counters (Elementary Treatment only)

## *Basic Electrical & Electronics Engineering*

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Introduction to Programming

Mr. K. Vijaya Prasad



As per CBCS & NEP

# Introduction to Programming

(Problem Solving using 'C')

Introduction to Programming

Mr. K. Vijaya Prasad

Mr. K. Vijaya Prasad

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# *Introduction to Programming*

**Author**

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## **M/s SunRaise International Publishers, Hyderabad**

A Part of StudentsHelpline Publishing House (P) Ltd.  
(An ISO 9001 : 2015 Certified Company)

### **Head Office**

# 7-1-277/242, 5<sup>th</sup> Floor  
Near B K Guda Park, S R Nagar, Hyderabad - 500 038, INDIA  
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mail:studentshelpline.in@gmail.com  
www.studentshelpline.in

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**First Edition-2023**

**ISBN: 978-93-92311-94-9**

**Rs. 820/-**

*Printed at StudentsHelpline Group, S R Nagar, Hyderabad-38*

*Published by Surneni Mohan Naidu for SunRaise International Publishers, Hyderabad - 38*

# *Introduction to Programming*

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## **Course Outcomes**

A student after completion of the course will be able to

1. Understand basics of computers, the concept of algorithm and algorithmic thinking.
2. Analyse a problem and develop an algorithm to solve it.
3. Implement various algorithms using the C programming language.
4. Understand more advanced features of C language.
5. Develop problem-solving skills and the ability to debug and optimize the code.

### **Unit-I: Introduction to Programming and Problem Solving**

**History of Computers, Basic organization of a computer:** ALU, input-output units, memory, program counter, Introduction to Programming Languages, Basics of a Computer Program- Algorithms, flowcharts (Using Dia Tool), pseudo code. Introduction to Compilation and Execution, Primitive Data Types, Variables, and Constants, Basic Input and Output, Operations, Type Conversion, and Casting.

**Problem solving techniques:** Algorithmic approach, characteristics of algorithm, Problem solving strategies: Top-down approach, Bottom-up approach, Time and space complexities of algorithms.

### **Unit-II: Control Structures**

Simple sequential programs Conditional Statements (if, if-else, switch), Loops (for, while, dowhile) Break and Continue.

### **Unit-III: Arrays and Strings**

Arrays indexing, memory model, programs with array of integers, two dimensional arrays, Introduction to Strings.

### **Unit-IV: Pointers & User Defined Data types**

Pointers, dereferencing and address operators, pointer and address arithmetic, array manipulation using pointers, User-defined data types-Structures and Unions.

## **Unit-V: Functions & File Handling**

Introduction to Functions, Function Declaration and Definition, Function call Return Types and Arguments, modifying parameters inside functions using pointers, arrays as parameters. Scope and Lifetime of Variables, Basics of File Handling.

# 'C' Language

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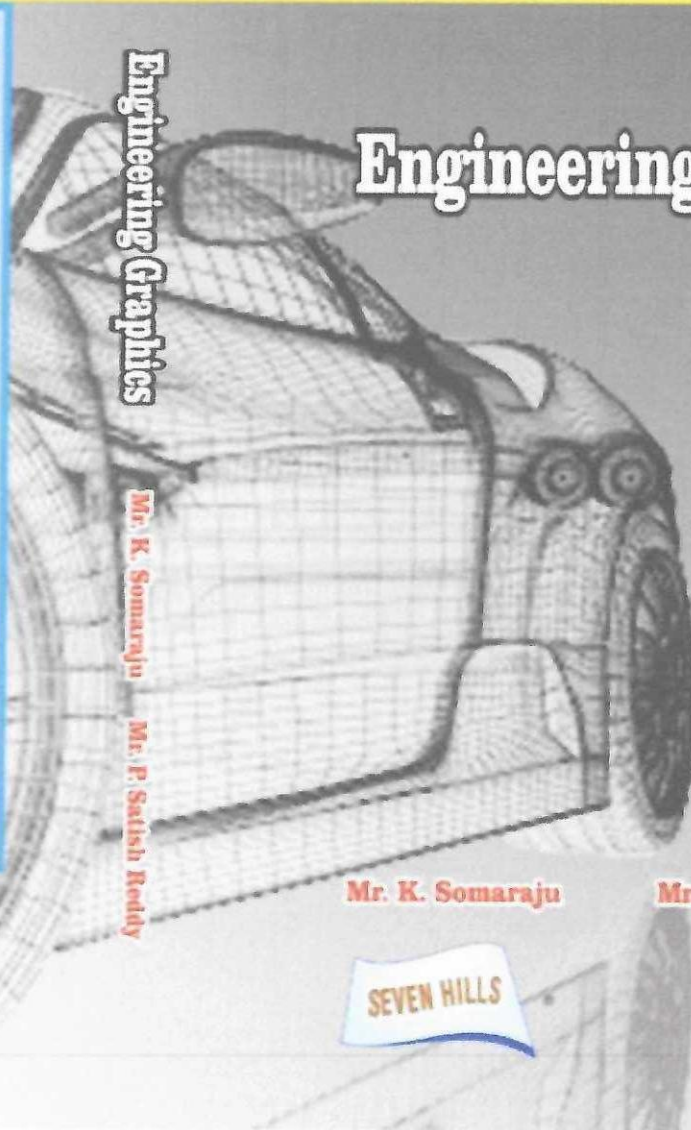
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# Engineering Graphics

Mr. K. Somaraju  
Mr. P. Satish Reddy



<b>Vocabulary - Part - A</b>	<b>Reasoning</b>	<b>Unit - I Grammar</b>	<b>Non-Verbal Reasoning</b>
<ul style="list-style-type: none"> <li>1. Synonyms</li> <li>2. Antonyms</li> <li>3. Error &amp; Correction</li> <li>4. Fill in the Blanks</li> <li>5. Cloze</li> <li>6. Reading Comprehension</li> <li>7. Sentence Completion</li> <li>8. True and False</li> <li>9. Matching</li> <li>10. Miscellaneous Questions</li> <li>11. Single Choice</li> </ul>	<ul style="list-style-type: none"> <li>1. Series</li> <li>2. Classification</li> <li>3. Coding &amp; Decoding</li> <li>4. Direction</li> <li>5. Blood Relations</li> <li>6. Family</li> <li>7. Seating</li> <li>8. Ranking</li> <li>9. Number Series</li> <li>10. Calendar</li> <li>11. Logical Reasoning</li> <li>12. Data Sufficiency</li> <li>13. Number of Rows</li> <li>14. Logical Deduction</li> </ul>	<ul style="list-style-type: none"> <li>1. Nouns</li> <li>2. Pronouns</li> <li>3. Adjectives</li> <li>4. Adverbs</li> <li>5. Prepositions</li> <li>6. Conjunctions</li> <li>7. Modals</li> <li>8. Tenses</li> <li>9. Direct &amp; Indirect Speech</li> <li>10. Narration</li> <li>11. Conversion of Sentences</li> <li>12. Question Tags</li> <li>13. Reported Speech</li> <li>14. Compound Sentences</li> <li>15. Complex Sentences</li> <li>16. Paragraphs</li> <li>17. Letter Writing</li> <li>18. Formal Letter</li> <li>19. Informal Letter</li> <li>20. Application Form &amp; Call Card</li> <li>21. Bank Address</li> <li>22. Invitation</li> <li>23. Receipts</li> <li>24. Notices &amp; Circulars</li> <li>25. Reports</li> <li>26. Summaries</li> <li>27. Essays</li> <li>28. Story Writing</li> </ul>	<ul style="list-style-type: none"> <li>1. Matrix</li> <li>2. Image</li> <li>3. Classification</li> <li>4. Coding</li> <li>5. Direction</li> <li>6. Blood Relations</li> <li>7. Family</li> <li>8. Seating</li> <li>9. Ranking</li> <li>10. Number Series</li> <li>11. Calendar</li> <li>12. Logical Reasoning</li> <li>13. Data Sufficiency</li> <li>14. Number of Rows</li> <li>15. Logical Deduction</li> </ul>



# Engineering Graphics

As per CBSE & NEP

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## **M/s SevenHills International Publishers, Hyderabad**

A Part of StudentsHelpline Publishing House (P) Ltd.

*(An ISO 9001 : 2015 Certified Company)*

### **Head Office**

# 326/C, Level - 2

Near B K Guda Park, S R Nagar, Hyderabad - 500 038, INDIA

P.No:+91 40 23710657, 238000657 Fax: +91 40 23810657

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# 5-68, Pedda Gorpadu, Pakala, Tirupati, Chittoor - 517 112 AP, INDIA

**mail:**studentshelpline.in@gmail.com

**www:**studentshelpline.in

© **SevenHills International Publishers**

**First Edition-2023**

**ISBN: 978-93-94122-99-4**

**Rs. 730/-**

*Printed at StudentsHelpline Group, S R Nagar, Hyderabad-38*

*Published by Surneni Mohan Naidu for SevenHills International Publishers, Hyderabad - 38*

# Engineering Graphics

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## Course Outcomes

1. Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.
2. Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views.
3. Understand and draw projection of solids in various positions in first quadrant.
4. Explain principles behind development of surfaces.
5. Prepare isometric and perspective sections of simple solids.

### Unit-I

**Introduction:** Lines, Lettering and Dimensioning, Geometrical Constructions and Constructing regular polygons by general methods.

**Curves:** construction of ellipse, parabola and hyperbola by general, Cycloids, Involutives, Normal and tangent to Curves.

**Scales:** Plain scales, diagonal scales and vernier scales.

### Unit-II

**Orthographic Projections:** Reference plane, importance of reference lines or Plane, Projections of a point situated in any one of the four quadrants.

**Projections of Straight Lines:** Projections of straight lines parallel to both reference planes, perpendicular to one reference plane and parallel to other reference plane, inclined to one reference plane and parallel to the other reference plane. Projections of Straight Line Inclined to both the reference planes

**Projections of Planes:** regular planes Perpendicular to both reference planes, parallel to one reference plane and inclined to the other reference plane; plane inclined to both the reference planes.

### Unit-III

**Projections of Solids:** Types of solids: Polyhedra and Solids of revolution. Projections of solids in simple positions: Axis perpendicular to horizontal plane, Axis perpendicular to vertical plane and Axis parallel to both the reference planes, Projection of Solids with axis inclined to one reference plane and parallel to another plane.

#### Unit-IV

**Sections of Solids:** Perpendicular and inclined section planes, Sectional views and True shape of section, Sections of solids in simple position only.

**Development of Surfaces:** Methods of Development: Parallel line development and radial line development. Development of a cube, prism, cylinder, pyramid and cone.

#### Unit-V

**Conversion of Views:** Conversion of isometric views to orthographic views; Conversion of orthographic views to isometric views.

**Computer graphics:** Creating 2D&3D drawings of objects including PCB and Transformations using Auto CAD (*Not for end examination*).



# Engineering Graphics

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