

## **I. Introduction**

Competencies based Curriculum on Analog and Digital Electronics and Communication Engineering had been developed for two-year Intermediate Vocational Course at the plus two stage of education. It had been designed to ensure attainment of knowledge and skills required for performing the job.

## **II. Objective of the Course**

To learn theory and practical knowledge in the fields of Electronics and Communication Engineering. Assembling testing and maintenance of Analog and digital electronic equipment with computer knowledge.

## **III. Skills to be provided**

Assembling, Testing and Maintenance of all electronic equipment

## **IV. Job Opportunities**

### **a) Wage Employment**

- 1) Electronic Equipment Assemblies
- 2) Electronic Equipment Tester
- 3) Electronic Equipment Repairer
- 4) Installation And Maintenance of Electronic Equipment
- 5) Electronic Equipment Sales and Service

### **b) Self Employment**

- 1) Servicing of Electronic Equipment
- 2) Dealership/Agency for Electronic Equipment
- 3) Manufacturing of Electronic Equipment

**5. Annual Scheme of Instruction and Examination for  
Vocational Courses 2nd Year**

<b>Part - A</b>	Theory		Practicals		Total	
	Periods	Marks	Periods	Marks	Periods	Marks
1. English	185	75	-	-	185	75
2. G.F.C.	185	75	-	-	185	75
<b>Part - B</b>						
3. Vocational Subjects						
Paper - I	160	50	160	50	320	100
Paper - II	160	50	160	50	320	100
Paper - III	160	50	160	50	320	100
<b>Part - C</b>						
4. On the Job Training -		-	210	50	210	50
Total	850	300	690	200	1540	500

**Scheme of Instruction per week for Vocational Courses**

<b>Part - A</b>	Theory	Practicals	Total
1. English	6	-	6
2. G.F.C.	6	-	6
<b>Part - B</b>			
3. Vocational subjects			
Paper - I	5	5	10
Paper - II	5	5	10
Paper - III	5	5	10

# ABSTRACT

<b>Ist Year</b>	<b>Name of the Subject</b>	<b>Periods</b>	<b>Marks</b>
<b>Theory</b>			
Paper I	Circuit Theory & Electronic Components	160	50
Paper II	Electronic Devices & Circuits	160	50
Paper III	Digital Electronics & Computer Fundamentals	160	50
<b>Practical</b>			
Practical I	Electronic Devices & Circuits Lab	160	50
Practical II	Digital Electronics & Computer Fundamentals Lab II	160	50
Practical III	Engineering Drawing	160	50
OJT	On Job Training	210	50

<b>IInd Year</b>	<b>Name of the Subject</b>	<b>Periods</b>	<b>Marks</b>
<b>Theory</b>			
Paper I	Communication Engineering	160	50
Paper II	TV & Modern Communication Systems	160	50
Paper II	Measuring Instruments & Consumer Electronics	160	50
<b>Practicals</b>			
Practical I	Communication Engineering Lab I	160	50
Practical II	T.V.Servicign Lab II	160	50
Practical III	Measuring instruments and Consumer Electronics Servicing Lab III	160	50
OJT	On Job Training	210	50

# **ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN**

## **CIRCUIT THEORY & ELECTRONIC COMPONENTS**

### **1<sup>st</sup> YEAR : ELECTRONIC COMPONENTS AND CIRCUIT THEORY THEORY-1**

**(Periods Per Week : 5 Periods Per Year : 160, Max.Marks : 50)**

<b>Sl.No.</b>	<b>Topics</b>	<b>No.of Periods</b>	<b>Weightage</b>
1.	Resistors	20	08
2.	Inductors and Transformers	20	08
3.	Capacitors	20	08
4.	A.C. Circuits	30	10
5.	Filters	20	08
6.	Microphones and Loud speakers	15	08
7.	Switches, Relays, PCB	25	10
8.	Batteries	10	08
	<b>Total</b>	<b>160</b>	<b>68</b>

**CIRCUIT THEORY & ELECTRONIC COMPONENTS**  
**I<sup>st</sup> YEAR**  
**THEORY PAPER - I**

**SUBJECT CONTENTS**

**1.0. Resistors**

- 1.1. Types of resistors, specifications
- 1.2. Colour code
- 1.3. Comparison of wire wound, metal film and carbon film resistors
- 1.4. Carbon and wire wound Potentiometers
- 1.5. Applications of above types of resistors
- 1.6. Ohm's law
- 1.7. Specific Resistance, factors effecting the value of resistance
- 1.8. Resistors in Series and parallel
- 1.9. Kirchoff's laws
- 1.10. Problems on above Topics

**2.0. Inductors and Transformers**

- 2.1. Electro Magnetic Induction, Faradays laws, Lenz's law
- 2.2. Self Inductance
- 2.3. Factors affecting the value of inductance
- 2.4. Mutual Inductance
- 2.5. Coefficient of coupling
- 2.6. Inductances in Series and parallel
- 2.7. Simple problems
- 2.8. Applications
- 2.9. Constructional details and working of Power, AF and RF Transformers
- 2.10. Specifications of a Transformer

### **3.0. Capacitors**

- 3.1. Define capacitance
- 3.2. Factors affecting the capacitance of a capacitor
- 3.3. Define Dielectric constant and Dielectric Strength of a material
- 3.4. Classify the types of capacitors
- 3.5. Colour code of capacitor
- 3.6. State the losses in a capacitor
- 3.7. Capacitors in Series and parallel
- 3.8. Simple problems
- 3.9. Applications

### **4.0. A.C. Circuits**

- 4.1. Fundamental Principles
- 4.2. Production of sinusoidal AC voltage-cycle, frequency, Instantaneous, maximum, average, RMS Values, Form Factor
- 4.3. A.C. Circuits containing RL, RC and RLC elements in series and parallel
- 4.4. Vector diagrams and problems on the above topic
- 4.5. Understand the concept of resonance in A.C. circuits
- 4.6. Define the term resonance.
- 4.7. Derive the expression for the resonant frequency in RLC series
- 4.8. Current and impedance at resonance of series resonant circuit.
- 4.9. Plot the frequency VS current and impedance variation curves.
- 4.10. Define bandwidth, 'Q' Factor & selectivity.
- 4.11. Expressions for resonance frequency of parallel circuit.
- 4.12. Distinguish between series and parallel resonance
- 4.13. Simple problems on series resonance
- 4.14. Applications of Resonant Circuits.

### **5.0. Filters**

- 5.1. Symmetrical and asymmetrical networks.

- 5.2. T type and TT type networks.
- 5.3. Types of filter circuits
- 5.4. Construction of constant K-type filters, L.P.F., H.P.F. and B.P.F. using T and TT networks attenuation, impedance VS frequency characteristics
- 5.5. Problems on the above
- 5.6. Applications of Filters
- 6.0. Microphones and Loud Speakers
- 6.1. Familiarise different types of microphones.
- 6.2. List the different types of Microphones based on impedance, polar characteristics and principle of working.
- 6.3. Explain the constructional details and working of carbon, condenser, crystal, dynamic and ribbon microphones and their ratings.
- 6.4. Explain the constructional features and principle of operation of PMMC Loud Speaker and its ratings.
- 6.5. Necessity of a baffle for a Loud Speaker
- 6.6. Types of baffles and their constructional details
- 6.7. Compare loudspeakers and head phones

## **7.0. Switches, Relays, PCB'S**

- 7.1. Familiarize with different types of Switches SPST, SPDT, DPST, DPDT
- 7.2. Different types of switches and their ratings
- 7.3. Sketch the ISI symbols of the above switches
- 7.4. Applications of the switches
- 7.5. Define a Relay
- 7.6. Classify different relays
- 7.7. Explain the construction and working of general purpose Electromagnetic Relay
- 7.8. Mention specifications and applications of relays

- 7.9. Explain the need of PCB in electronic equipment
- 7.10. Classify Printed Circuit Boards
- 7.11. List types of laminates used in PCB
- 7.12. Mention the methods of layout preparation of PCB
- 7.13. List the methods of transferring layout on the copper clad sheet
- 7.14. List the steps involved in Screen-printing for making PCB
- 7.15. List the materials used in Screen-printing
- 7.16. Describe the photo processing techniques for PCB preparation
- 7.17. Mention the methods of etching, cleaning and drilling of PCB
- 7.18. List the soldering methods of PCB
- 7.19. Give the use of edge connectors and plating
- 7.20. Give the standard PCB Specification.

## **8.0. Batteries**

- 8.1. Elementary treatment of Batteries primary cells and secondary cells.
- 8.2. Comparison of primary and secondary cells
- 8.3. Constructional details of Lead Acid cell nickel cademum, nickel iron and working
- 8.4. Applications of the above cells.
- 8.5. Comparison lead acid, nickel cademumm, Nickel iron cells.

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN  
1<sup>st</sup> YEAR : VOCATIONAL  
THEORY- PAPER - II**  
(Periods Per Week : 5 Periods; Per Year : 160, Max.Marks : 50)

**ELECTRONIC DEVICES AND CIRCUITS**

<b>Sl.No.</b>	<b>Topics</b>	<b>No.of Periods</b>	<b>Weightage</b>
1.	Solid State Devices	35	16
2.	Power Supplies	20	12
3.	Small Signal Amplifiers	30	10
4.	Power Amplifiers	20	08
5.	Feed back Amplifiers	15	08
6.	Oscillators	20	06
7.	Pulse Shaping Circuits	10	04
8.	Integrated Circuits	10	04
	<b>Total</b>	<b>160</b>	<b>68</b>

**I<sup>st</sup> YEAR : VOCATIONAL  
THEORY PAPER-II  
ELECTRONIC DEVICES AND CIRCUITS**

**Subject Contents :**

**1. Solid State Devices**

- 1.0. Introduction to the Solid State (Semiconductor) Devices
- 1.1. Atomic Structure, K,L,M,N, energy levels, valence Electrons
- 1.2. Inter atomic bonds
- 1.3. Energy band diagrams of conductors, insulators, and semiconductors with example
- 1.4. Electrical properties of Semiconductor materials
- 1.5. Intrinsic and Extrinsic Semiconductors
- 1.6. Formation of P type and N type materials
- 1.7. Formation and behaviour of PN Junction diode, Zener diode, Photo diode, LED, Varactor diode, characteristics and applications
- 1.8. Introduction to Transistors
- 1.9. Formation working and properties of PNP and NPN transistor
- 1.10. Transistor configurations, input and output characteristics. Define alpha, beta,  $I_{co}$ , Relation between alpha and beta.
- 1.11. Working of FET & MOSFET, characteristics and applications
- 1.12. Special devices SCR, UJT, TRIAC, DIAC, their characteristics and their applications.

**2. Power Supplies**

- 2.0. Introduction to the power supply circuits
- 2.1. Types of Rectifier circuits
- 2.2. Draw & explain the working of Half wave, Full wave and Bridge Rectifier Circuits
- 2.3. Define RMS, DC Value, Ripple factor and efficiency of above

circuits

- 2.4. Necessity of a Filter-different filter circuits
- 2.5. Concept of voltage regulation, working of Zener diode as regulator
- 2.6. List the IC Regulators

### **3. Small Signal Amplifiers**

- 3.0. Introduction
- 3.1. Basic concept of amplifier circuits by CB, CE, CC Amplifiers using transistors, compare their characteristics
- 3.2. Biasing and stabilisation of BJT amplifiers
- 3.3. Classification of amplifiers according to frequency, mode of operation, type and methods of coupling i.e. RC, LC, RL coupled, Transformer coupled and direct coupled.
- 3.4. Know frequency response, gain of the above amplifiers

### **4. Power Amplifiers**

- 4.0. Introduction to the AF and RF power amplifiers
- 4.1. Distinguish between Voltage and Power Amplifiers
- 4.2. Explain working of Single ended class A power Amplifier
- 4.3. Explain working of class B push-pull Amplifier
- 4.4. Explain working of complementary symmetry push pull amplifier
- 4.5. List the applications of power Amplifier

### **5. Feed back Amplifiers**

- 5.0. Introduction to feed back amplifier, types of feedback
- 5.1. Principle of negative feed back amplifiers and their advantages
- 5.2. Different types of negative feedback
- 5.3. Explain the working of Emitter follower circuit and mention its advantages
- 5.4. Explain working of basic differential amplifiers
- 5.5. The Block diagram of operational Amplifier
- 5.6. Advantages of OP-AMP
- 5.7. Applications of OP-AMP

## **6. Oscillators**

- 6.0. Introduction to positive feed back
- 6.1. List the requisites of an oscillator
- 6.2. Explain the working of Hartley, Collpitts, Crystal, Tuned Collector oscillators
- 6.3. Explain the working of RC Phase Shift oscillator
- 6.4. List the different types of Multivibrators
- 6.5. Explain with circuit diagram, Astable Multivibrator
- 6.6. Explain the principle of Bistable and Monostable Multivibrators

## **7.0. Pulse Shaping circuits**

- 7.1. Distinguish between linear wave shaping and non linear wave shaping circuits
- 7.2. Integrating and differentiating circuits
- 7.3. Clipping and Clamping circuits
- 7.4. Applications of above circuits

## **8.0 Integrated Circuits**

- 8.1. Introduction to Microelectronics
- 8.2. Advantages of IC'S
- 8.3. Various IC packages
- 8.4. IC Pin Identification
- 8.5. Scale of Integration SSI, MSI, LSI, VLSI
- 8.6. Mention the precautions to be taken while handling IC'S

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN**

**1<sup>st</sup> YEAR : PAPER III**

**SUBJECT : DIGITAL ELECTRONICS  
& COMPUTER FUNDAMENTALS**

**(Subject Code : Max. Marks : 50, Periods per Year : 160,  
Periods per week : 5)**

<b>Sl.No.</b>	<b>Topics</b>	<b>No.of Periods</b>	<b>Weightage</b>
1.	Number System and Digital Circuits	25	12
2.	Flip Flops, Register, Counters	30	12
3.	Semiconductor Memories	30	12
4.	A/D, D/A Converters	15	8
5.	Fundamentals of Computer	20	8
6.	Windows operating system	20	8
7.	Features of word processing package	20	8
	<b>Total</b>	<b>160</b>	<b>68</b>

**I<sup>st</sup> YEAR**  
**THEORY PAPER-III**  
**DIGITAL ELECTRONICS AND COMPUTER FUNDAMENTALS**

**Subject Contents :**

**1. Number Systems and Digital Circuits**

- 1.1. Explain Binary, Octal, Hexadecimal numbering systems and compare with decimal system.
- 1.2. Convert one number system to another of the above systems
- 1.3. Perform binary addition, subtraction, multiplication and division
- 1.4. Write 1's complement, 2's complement numbers for a given binary number.
- 1.5. Know about the ASCII code
- 1.6. Explain AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR gates with truth table.
- 1.7. List the IC's used for above gates
- 1.8. State the function of Half Adder and Half Subtractor
- 1.9. Draw the Half Adder Circuit using EX-OR gate and AND gate
- 1.10. Draw and explain the full Adder circuit

**2. Flip Flops, Registers and Counters**

- 2.1. State the basic principle of operation of a flip-flop
- 2.2. Explain with logic diagram, symbol and truth-tables, the working of RS, RST, R, D, JK, Master-slave Flip Flops.
- 2.3. State the need for a Register.
- 2.4. Explain transfer of data from a Register to Register
- 2.5. List the different types of shift Registers.
- 2.6. Explain the working of shift left, shift right registers (7495)
- 2.7. Distinguish between synchronous and asynchronous counters.
- 2.8. Draw the block diagram of a decade counter and explain its operation (7490)

- 2.9. List the applications of counters
- 2.10. Draw and explain 3 to 8 Decoder

### **3. Semiconductor Memories**

- 3.1. State the necessity of Memory in Digital Circuits
- 3.2. State the use of Shift Register as memory.
- 3.3. Define the memory terminology like read, write, access time, capacity, word length, address, sequential access, read only memory and read/write memory, PROM, EPROM, EEPROM, UVPRM.

### **4. A/D, D/A Converters**

- 4.1. State the need for A/D and D/A Conversion.
- 4.2. List the different methods of A/D and D/A Conversions.
- 4.3. Explain the counter method of A/D Conversion.
- 4.4. Explain the Ladder type of D/A Conversion .

### **5. Fundamentals of Computer**

- 5.1. Draw the block diagram of a computer.
- 5.2. Explain the interaction between the CPU, memory, input/output devices.
- 5.3. Describe the function of memory, CPU.
- 5.4. Describe the function of input/output devices.
- 5.5. State relevance of speed and word length for CPU performance.
- 5.6. List the major functional blocks of CPU.
- 5.7. Recognise the current family of CPU's used in computers.
- 5.8. List types of memory used in a computer.
- 5.9. State the importance of Cache memory.
- 5.10. State the use of storage devices used in a computer.
- 5.11. Generations of Computer.
- 5.12. Classification of Computers - based on size, processor.

## **6. Windows Operating System**

- 6.1. Describe the need for an operating system
- 6.2. List the various operating systems used presently
- 6.3. Internal Commands - Copy, Del, Dir, Type, CD, MD, RD Mode, Path, Date, Time, Copy Con etc.
- 6.4. External commands - Format, CHKDSK, Scandisk, X Copy, Attrib, Disk Copy, Print, Tree, Del
- 6.5. Explain the method of starting a program using start button
- 6.6. State the meaning of a File, Folder
- 6.7. Explain the method of finding a file using Find option.
- 6.8. Carry out maximise, Resize, and close operations on a window.

## **7.0. Explain entering text using word**

- 7.1. Narrate the process of copy, cut, paste the text within the same file.
- 7.2. Explain the process of selecting text and inserting into another file.
- 7.3. Narrate how to type symbols and special characters.
- 7.4. Explain saving a document.
- 7.5. Describe setting margins and indents.
- 7.6. Describe formatting paragraph.
- 7.7. Describe introducing multiple columns.
- 7.8. Explain creation of a table.
- 7.9. Describe printing a document.
- 7.10. Explain how to carry out spell check .
- 7.11. Describe the process of including headers and footers.
- 7.12. Describe the mail merge feature of word.

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN  
I YEAR PRACTICALS  
ELECTRONIC DEVICES AND CIRCUITS LAB**

**(Periods Per Week : 5, Periods Per Year : 160 Max. Marks : 50 )**

1. Measurement of Resistance, Capacitance and inductance by E and I method and verification of Resistance by colour code	8
2. Resistors in Series and Parallel Circuits	8
3. Measurement of Coefficient of coupling of an iron core transformer	8
4. Series Resonance Circuit and determination of its resonant frequency, bandwidth	8
5. Parallel resonance circuit, determination of its resonant frequency, bandwidth	8
6. Low pass Filter (Frequency $V_s$ attenuation)	8
7. High Pass Filter (Frequency $V_s$ attenuation)	8
8. PN Diode Characteristics - Forward and Reverse characteristics	8
9. Zener Diode characteristics	8
10. Transistor characteristics - CE and CB	8
11. FET Characteristics	8
12. SCR Characteristics	8
13. Zener Voltage regulators, and measurement of percentage of regulation	8
14. RC coupled Amplifier : obtain the frequency response and calculate the gain	8
15. Study of Push pull power Amplifier	8
16. Half wave Rectifier, Full wave Rectifier with and without filter, calculate the ripple factor and percentage of regulation	8
17. Measurement of frequency of Hartley and colpitts oscillators	8
18. Measurement of frequency of Tuned Collector and Crystal Oscillators	8
19. Study of different IC packages and pin identification	8
20. Study of different types of batteries	8
<b>Total</b>	<b>160</b>

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN**

**I YEAR**

**DIGITAL ELECTRONICS AND  
COMPUTER FUNDAMENTALS LAB II**

**(Max. Marks : 50, Periods per Week : 5, Periods per year : 160)**

Sl.No.	Major Topics	No.of Periods
1.	Logic gates - I - AND, OR, NOT (Using IC's)	5
2.	Logic gates - II - NAND, NOR, EX-OR (Using IC's)	5
3.	Half Adders - Subtractor (Using IC Logic gates)	5
4.	Full adder - Subtractor (Using IC Logic gates)	5
5.	Verification of truth tables of RS, RST, D, T	5
6.	JK and Master Slave JK Flip Flop	5
7.	To study details of counters IC's like 7490	5
8.	To study shift register IC's like 7495	5
9.	Observe the output of decade counter 7490 on a seven segment display using a decoder	5
10.	A/D, D/A Converter	5

## **11. Windows : (20)**

- 11.1. Starting the windows operating system.
- 11.2. Start a program using the program option of the start menu.
- 11.3. Minimize, Maximize, Close a window.
- 11.4. Resize and move a window.
- 11.5. Open multiple windows and switch between windows.
- 11.6. Locate a file using the find option of the start menu.
- 11.7. Open Note pad, Paint and Word pad programs.
- 11.8. Practice locating files stored on the Hard disk drive.
- 11.9. Through Find option in the start menu study different folders and files stored on the hard disk drive.
- 11.10. Know the various options in "My Computer" icon.

## **12.0. Text Manipulation (10)**

- 12.1. Create and save a document.
- 12.2. Select, copy, cut and paste text within the same file.
- 12.3. Select, copy, cut and paste text into another file.
- 12.4. Type symbols and special characters.
- 12.5. Set margins and index.
- 12.6. Format paragraph.
- 12.7. include headers and folders.
- 12.8. Put text in multiple columns.
- 12.9. Create a table.
- 12.10. Print a document.
- 12.11. Carryout mail merge.

## **13.0. Exercises on worksheet (10)**

- 13.1. Insert cells, rows, columns in worksheet.
- 13.2. Change column width and row height.
- 13.3. Enter, edit and use formula.
- 13.4. Use page setup feature.
- 13.5. Work with multiple worksheets.
- 13.6. Use function in worksheet.

- 13.7. Create and edit charts.
- 13.8. Create and place graph objects.

#### **14.0. Power Point (10)**

- 14.1. Use the readymade slide format available in power point.
- 14.2. Enter and edit text.
- 14.3. Create text animation in the slide.
- 14.4. Create slide transition effects.
- 14.5. Insert a picture.
- 14.6. Change the slide back ground.
- 14.7. Create picture animation.

#### **15.0. MS-access (20)**

- 15.1. Create various types of data within a table.
- 15.2. Add, delete and rename fields.
- 15.3. Use the primary key field.
- 15.4. Enter and edit data.
- 15.5. Modify and save forms.
- 15.6. Create and use queries.
- 15.7. Sort data.
- 15.8. Display data.
- 15.9. Create and print reports.

#### **16.0. Websites (20)**

- 16.1. Access given a worldwide Website.
- 16.2. Send E-mail using a browsing software.
- 16.3. Receive E-mail using a browsing software.
- 16.4. Send and receive attachments.

#### **17.0. DOS (20)**

- 17.1. Practice on internal & external commands.
- 17.2. Create and use Batch files.

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN  
I<sup>st</sup> YEAR ENGINEERING DRAWING  
PRACTICAL PAPER-III**

<b>Sl.No.</b>	<b>Major Topics</b>	<b>No.of Periods</b>
1.	Introduction	6
2.	Lettering and Dimensioning	10
3.	Geometrical Construction	24
4.	Orthographic Projection	45
5.	Isometric Projection	35
6.	Sections of Solids	20
7.	Development of Surfaces	20
	<b>Total</b>	<b>160</b>

## **Syllabus Contents**

### **1.0. Introduction**

- 1.1. Scope and objective of the subject
- 1.2. Importance of engineering drawing as a communication medium
- 1.3. Drawing instruments and their uses
- 1.4. Scales : Recommended scales, reduced & enlarged
- 1.5. Sheet sizes : A0, A1, A2, A3, A4, A5. Layout of drawing sheet sizes of title block and its contents
- 1.6. Simple exercises on the use of drawing instruments.

### **2.0. Lettering and Dimensioning**

- 2.1. Types of Lettering
- 2.2. Guide Lines for lettering
- 2.3. Recommended sizes of letters and numbers
- 2.4. Single stroke letters.
- 2.5. Dimensioning - rules and systems of dimensioning - dimensioning a given drawing

### **3.0 Geometric Construction**

- 3.1. Bisecting a line - perpendiculars - parallel lines - division of a line
- 3.2. Angles - bisection, trisection
- 3.3. Tangent lines touching circles internally and externally
- 3.4. Polygons - Regular polygons - circumscribed and inscribed in circles.
- 3.5. Conic sections - Definitions of focus, directrix, eccentricity
  - (i) Construction of Ellipse by Concentric circles method.
  - (ii) Construction of parabola by rectangular method.
  - (iii) Construction of Hyperbola when given the position of point from X-axis and Y-axis.

### **4.0 Orthographic Projection**

- 4.1. Definition - Planes of Projection - Four quadrants - Reference line.

- 4.2. First angle projection - Third angle projection
- 4.3. Projections of points
- 4.4. Projections of straight lines
- 4.5. Projections of planes
- 4.6. Projections of solids
- 4.7. Conversion of pictorial views into orthographic views

#### **5.0. Isometric Projection**

- 5.1. Definition - Isometric axes, lines and planes
- 5.2. Isometric Scale - Isometric view
- 5.3. Drawing of isometric views of plane figures
- 5.4. Drawing of isometric views of prisms and pyramids
- 5.5. Drawing of isometric view of cylinders and cones

#### **6.0. Sections of Solids**

- 6.1. Need for drawing sectional views - section planes - sections - true shape of a section
- 6.2. Sections of prisms and pyramids
- 6.3. Sections of cones and cylinders.

#### **7.0. Development of Surfaces**

- 7.1. Need for preparing development of surface
- 7.2. Concept of true length - Principal methods of development
- 7.3. Development of simple solids like cubes, prisms, cylinders, pyramids, cones.
- 17.3. Know the usage of Edlin Editor

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN**

**II<sup>nd</sup> YEAR**

**PAPER-1**

**(Max. Marks ; 50, Periods/week:5, Total periods:160)**

**SUBJECT : COMMUNICATION ENGINEERING**

**MAJORTOPICS**

<b>SI.No.</b>	<b>Topics</b>	<b>No.of Periods</b>	<b>Weightage</b>
1	Modulation	15	08
2.	Antennas	15	08
3.	Radio Transmitters	15	08
4.	AM Radio Receivers	25	10
5.	FM Radio Receivers	20	08
6.	Servicing of Radio Receivers	25	10
7.	Servicing of F.M. receiver	25	08
8.	PA System and Tape Recorders	20	08
	<b>Total</b>	<b>160</b>	<b>68</b>

**COMMUNICATION ENGINEERING**  
**II<sup>nd</sup> YEAR VOCATIONAL**  
**THEORY PAPER-I**

**Subject Contents :**

**1.0. Modulation (15)**

- 1.1. Need for Modulation.
- 1.2. Types of Modulation.
- 1.3. Waveforms & Expressions of AM, FM.
- 1.4. Define Modulation Index, Band width.
- 1.5. Comparison of AM, FM.
- 1.6. Explain the principle of Pulse Modulation.
- 1.7. List the different types of Pulse Modulation Methods.
- 1.8. Sketch the waveforms of PAM, PPM & PCM.
- 1.9. Applications of different modulating techniques.

**2.0. Antennas (15)**

- 2.1. Introduction to Antennas.
- 2.2. Principles of radiation.
- 2.3. Sketch the current & voltage distribution in an antenna.
- 2.4. Define Antenna Parameters, antenna gain, resistance, band width, effective aperture, effective length & Polarization.
- 2.5. State the need for folded dipole antenna.
- 2.6. State the function of Yagi antenna.
- 2.7. Explain the principle of parabolic reflector.
- 2.8. Explain a horn antenna.

**3.0. Radio Transmitters (15)**

- 3.1. Explain the Principle of working of AM Low level Transmitters with block diagram.
- 3.2. Explain principle of working of AM High Level Transmitters with block diagram.

- 3.3. Explain the Principle of working of FM Transmitters with block diagram (Armstrong Method).

#### **4.0. AM Receivers (25)**

- 4.1. Draw & explain the crystal receivers.
- 4.2. Mention the need of RF amplifier.
- 4.3. Explain the principle of TRF receiver.
- 4.4. Identify the need for heterodyning in a Radio Receiver.
- 4.5. Block diagram of Super heterodyne receiver and explain the function of each block.
- 4.6. Identify the need of R.F. & I.F. amplifier stages.
- 4.7. Draw the circuit diagram of R.F. Amplifier & Converter stages of Super heterodyne receiver, explain their working.
- 4.8. Explain adjacent channel interference and methods of elimination.
- 4.9. Outline the principle of selecting correct I.F.
- 4.10. Draw the circuit of I.F. amplifier & explain its working.
- 4.11. Draw the circuit of Detector & A.F. Voltage amplifier stage & explain its working.
- 4.12. Draw the circuit of output stage & explain its working.
- 4.13. Explain Tracking & Alignment.
- 4.14. Explain the need for AVC & draw the AVC circuit.
- 4.15. Define selectivity, sensitivity, fidelity & image rejection ratio.

#### **5.0. FM Receivers (20)**

- 5.1. Draw the block diagrams of FM receiver.
- 5.2. Explain the function of each block.
- 5.3. Draw the circuit of Limiter & explain its need.
- 5.4. Explain the working of Foster-Seely discriminator
- 5.5. Explain IC version AM/FM receiver

#### **6.0. Servicing of AM Receiver (25)**

- 6.1. Different Methods of servicing procedure
- 6.2. History of faulty receiver.

- 6.3. Physical checkup & visual means.
- 6.4. Signal substitution method.
- 6.5. Signal Tracing method.
- 6.6. Resistance & Voltage analysis.
- 6.7. Part substitution method.
- 6.8. Probable faults in R.F. Stage & rectification of them.
- 6.9. Probable faults in convertor stage & rectification of them.
- 6.10. Probable faults in IF stage & rectification of them.
- 6.11. Probable faults in Detector Stage, voltage.  
Amplifier & rectification

### **7.0 Servicing of FM Receivers (25)**

- 7.1. Servicing of FM Receiver.
- 7.2. Probable faults in limiter stage and rectification.
- 7.3. Probable faults in discriminator stage & rectification.
- 7.4. Servicing of IC version AM/FM receivers, by module replacement.

### **8.0. PA System and Tape Recorders (20)**

- 8.1. Draw the block diagram of P.A. System & explain the function of each block.
- 8.2. Know the servicing procedure of PA system.
- 8.3. Impedance matching & voltage matching.
- 8.4. Draw the Block diagram of Tape Recorder & explain the function of each block.
- 8.5. Draw the block diagram of Radio-cum-Tape Recorder & explain the function of each block.
- 8.6. Principle of Hi-Fi & stereo systems.
- 8.7. Brief discussion on cross-over network, woofers, tweeters & drivers
- 8.8. Mention the typical faults in Radio-cum-Taperecorder at each stage & their rectification.

**ELECTRONICS & COMMUNICATION ENGINEERING  
TECHNICIAN**

**II<sup>nd</sup> YEAR : VOCATIONAL THEORY- PAPER - II**  
**(Periods Per Week : 5 Periods Per Year : 160, Max.Marks : 50)**

**TV & MODERN COMMUNICATIONS SYSTEMS**

<b>Sl.No.</b>	<b>Topics</b>	<b>No.of Periods</b>	<b>Weightage</b>
1.	T.V. Transmitter	20	10
2.	Black and White TV Receiver	30	10
3.	Colour TV Receiver	30	10
4.	Servicing of B/W & Colour TV Receiver	35	16
5.	Fibre Optic Communication	15	08
6.	Satellite Communication	15	08
7.	Cellular Communication	15	06
	<b>Total</b>	<b>160</b>	<b>68</b>

# **ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN**

## **II<sup>nd</sup> YEAR : VOCATIONAL THEORY- PAPER - II TV & MODERN COMMUNICATION SYSTEMS**

### **Contents :**

#### **1.0. TV Transmitter (30)**

- 1.1. Draw the block diagram of basic TV system and explain the function of each block.
- 1.2. Explain formation of picture.
- 1.3. State the need for horizontal and vertical scanning.
- 1.4. CCIR - B standards and specifications for Monochrome TV.
- 1.5. Explain the interlaced scanning.
- 1.6. Sketch the composite video signal as per ISI specification.
- 1.7. State the need for vertical synchronization, horizontal synchronisation, blanking pulses, front porch, back porch and equalising pulses.
- 1.8. Name the different types of camera tubes.
- 1.9. Describe the construction and working of Image Orthicon tube.
- 1.10. Draw the block diagram of TV Transmitter and explain the function of each block.

#### **2.0. Black and White TV Receiver (25)**

- 2.1. Draw the block diagram of Black White TV Receiver and explain the function of each block.
- 2.2. Sketch the signals at various input and output stages in the block diagram.
- 2.3. List the ICs used for different stages of Black and White TV.
- 2.4. Mention different sizes of Picture Tubes and their EHT values.
- 2.5. Constructional details of picture tube.
- 2.6. Understand about yoke, centering magnets and pin-cushion magnets.
- 2.7. Know the importance of SMPS.
- 2.8. Know about Balun and antenna cable

### **3.0. Colour TV Receiver (25)**

- 3.1. Explain the main characteristics of human eye with regard to perception of colours.
- 3.2. Distinguish between additive and subtractive mixing of colours.
- 3.3. Explain complementary colours, hue, saturation and colour circle.
- 3.4. Know the standards of colour Transmission systems, NTSC, PAL and SECAM.
- 3.5. Draw the block diagram of a colour TV Transmitter and state the function of each block.
- 3.6. Draw the block diagram of a colour TV Receiver and state the function of each block.
- 3.7. Explain the processing of colour video signal in a colour Receiver.
- 3.8. Describe constructional features of colour picture tubes, and mention the EHT values.
- 3.9 Explain the Degaussing circuit in colour TV Receiver.
- 3.10. List the ICs used for different stages.

### **4.0. Servicing of Black White, Colour TV Receiver (35)**

- 4.1. List different operating and servicing controls of Black White TV and Colour TV.
- 4.2. List the common faults in each stage of Black and White TV and Colour TV.
- 4.3. Explain the visual alignment of video IF stage of a TV Receiver.
- 4.4. Explain stage by stage analysis of fault finding in TV receiver, including picture tube.

### **5.0. Fibre Optic Communication (15)**

- 5.1. Explain the basic principle of data transmission through Fibre Optic Cable
- 5.2. Explain the principle of working of Transmitter in Fibre Optic communication

5.3. Explain the principle of working of Receiver used in Fibre Optic Communication

5.4. List the applications and advantages of Fibre Optic Communication

**6.0. Satellite Communication (15)**

6.1. Explain the principles of line of sight system.

6.2. Give reasons for selection of operating frequency.

6.3. Explain the basic principles of active and passive satellites.

6.4. Explain the concept of geo stationary synchronous satellite.

6.5. State the need for satellite for TV Broad casting over wide area.

**7.0. Cellular Communication (15)**

7.1. Know the concept of cellular communication.

7.2. State the Frequency Allocation and use.

7.3. Explain system operation.

# ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN

## II<sup>nd</sup> YEAR VOCATIONAL THEORY PAPER-III

### MEASURING INSTRUMENTS AND CONSUMER ELECTRONICS

(Periods Per Week : 5 Periods Per Year : 160, Max.Marks : 50)

Sl.No.	Topics	No.of Periods	Weightage
1.	Current Voltage R-L-C power Measurement	20	10
2.	Signal Generators	20	10
3.	Test Equipment	30	12
4.	UPS, Stabilizer	30	12
5.	Inverters	25	10
6.	Telephones	20	10
7.	DVD Player	15	4
	<b>Total</b>	<b>160</b>	<b>68</b>

# **ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN**

## **II<sup>nd</sup> YEAR VOCATIONAL THEORY PAPER-III**

### **MEASURING INSTRUMENTS & CONSUMER ELECTRONICS**

#### **Syllabus Contents**

#### **1.0. Current, Voltage, R-L-C and Power Measurements (20)**

- 1.1. Explain construction and working principle of Permanent Magnet Moving Coil type Ammeter.
- 1.2. Explain the conversion of ammeter into voltmeter.
- 1.3. Explain the working of Analog multimeter using block diagram.
- 1.4. Explain the working of AF power meter.
- 1.5. Explain the working of Digital R-L-C meter using block diagram.
- 1.6. Explain the working of Ramp type digital Voltmeter.

#### **2.0. Signal Generators (20)**

- 2.1. Explain the working of AF Oscillator, list its controls.
- 2.2. Explain the working of A.M.S.S.G. list its controls.
- 2.3. Distinguish between A.F. Oscillator and A.M.S.S.G.

#### **3.0. Test Equipment (30)**

- 3.1. Explain the working of general purpose CRO with block diagram
- 3.2. Explain the construction of CRT.
- 3.3. List the controls on CRO and mention their function.
- 3.4. Mention the procedure to measure DC and AC voltage with CRO.
- 3.5. Mention the procedure to measure frequency and phase with CRO.
- 3.6. Draw the block diagram of pattern generator and explain function of each block.
- 3.7. Mention the specifications of pattern generators
- 3.9. Draw the block diagram of Wobbuloscope and explain the function of each block.

- 3.10. Explain the use of Wobbuloscope.
- 3.11. Explain the working of Digital IC tester using block diagram.

#### **4.0. UPS, Stabilizer (30)**

- 4.1. Draw the block diagram of Battery Eliminator and explain the function of each block.
- 4.2. Mention the specifications of typical battery eliminators and list their applications.
- 4.3. Draw the circuit diagram of simple Battery eliminator and explain function of each componet
- 4.4. Mention typical faults of each stage and their rectification
- 4.5. Draw the block diagram of Electronic Stabilizer and explain the function of each block.
- 4.6. Mention the specification of typical Electronic Stabilizer and list their applications.
- 4.7. Draw the circuit diagram of simple Electronic Stabilizer and explain function of each component.
- 4.8. Mention typical faults at each stage and their rectification.
- 4.9. Draw the block diagram of UPS and explain the function of each block.
- 4.10. Mention the typical faults at each stage and their rectification.

#### **5.0. Inverters (25)**

- 5.1. Explain the need for Inverters.
- 5.2. Draw the circuit of a single phase inverter using center tapped DC supply and center tapped load and using single phase bridge.
- 5.3. Applications of Inverters.
- 5.4. Draw the block diagram of Emergency Light using rechargeble battery and explain function of each block
- 5.5. Mention the specifications of typical emergency light
- 5.6. Mention typical faults of each stage and their rectification.

## **6.0. Telephony (20)**

- 6.1. Explain the working principle of Telephone Transmitter.
- 6.2. Explain the working principle of Telephone Receiver.
- 6.3. Describe the different tones used in Telephone Exchanges with Waveforms (Showing frequency and intervals).
- 6.4. Explain the working of Electronic Private Automatic Branch Exchange (EPABX).
- 6.5. Draw the block diagram of Intercom and explain function of each block.
- 6.6. Mention the specifications of Typical Intercom.
- 6.7. Mention typical faults at each stage and their rectification.
- 6.8. Understand the difference between Landline Telephone, cordless telephone and cellphone.

## **7.0. DVD Player (20)**

- 7.1. Explain the working principle of VCD player with block diagram.
- 7.2. Explain the working principle of DVD player with block diagram.
- 7.3. Explain the working of TV Remote Control Transmitter and Receiver with block diagram.

# **ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN**

## **II<sup>nd</sup> YEAR - PRACTICAL-1**

**(Max. Marks ; 50, Periods/week:5, Total periods:160)**

### **SUBJECT : COMMUNICATION ENGINEERING LAB I**

1. Study of Servicing tools and instruments (Soldering Iron, Screw Driver Set, Tweezer, Nose Plier, Cutter, Hammer, File, Desolder pump, Squeezer) 10
2. Electronic Lab safety precautions (Regarding wiring, Flooring, First Aid Treatment). 10
3. Soldering Practice on PCB and wiring practice 10
4. Familiarization and Testing of Electronic Components like resistor, capacitor, inductor, transformer, loud speaker, switches, relays, connectors, fuses and cables and semi conductor devices like diode, transistor, IC packages 10
5. Study of power supply stage in Radio Receiver (Full wave Bridge Rectifier with Filter) 10
6. Study of output stage, voltage measurement 10
7. Study of Detector and AF Voltage Amplifier, Voltage measurement 10
8. Study of IF Amplifier Stage and Voltage measurement. 10
9. Study of RF Amplifier, Mixer, Local oscillator stage and voltage measurement 10
10. Study of FM receiver 10
11. Study of IC version 2-band Radio AM/FM Radio receiver 10
12. Study of Multiband Radio receiver 10
13. Mention typical faults in a Radio receiver and observe the effect on voltage data and performance of the Radio Receiver 10
14. Study of PA system and measurement of standard voltages at various points 10
15. Rectifying the faults in PA system 05
16. Study of Tape Recorder, Two-in-one and Audio CD player 05
17. Rectify the faults in the Tape Recorder, Two-in-one 05
18. Rectify the faults in Audio CD player 05

# **ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN**

**II<sup>nd</sup> YEAR**

**PRACTICAL-II**

**(Max. Marks ; 50, Periods/week:5, Total periods:160)**

## **SUBJECT : T.V. SERVICING LAB**

1.	Study of pattern generator and its use	10
2.	Study of wobuloscope and its use for alignment of T.V. receiver	10
3.	Study of operating controls and servicing controls of B/W T.V and typical voltages	10
4.	Tracing of different stages in B/W T.V. Receiver	10
5.	Familiarisation of different stages with Transistors, IC's used in B/W T.V., typical voltages	10
6.	Tracing of different stages of Colour T.V. receiver	10
7.	Familiarisation of different stages with transistors, IC's used in Colour T.V. and Typical Voltages.	10
8.	Measurement of picture tube voltages of B/W, Colour T.V. and picture adjustments	10
9.	Assemble and erection of T.V. antenna	10
10.	Front panel controls and adjustments	10
11.	T.V. picutre, sound adjustments by using pattern generator	10
12.	Study the faults in various stages of B/W T.V. and rectification	10
13.	Rectify the given faults in various stages of colour T.V.	10
14.	Study of SMPS and measurement of the output voltages	10
15.	Identify the stages of SMPS, and mention the faults in SMPS and rectification of the faults	10
16.	Study of different types of Tuners	10

# **ELECTRONICS & COMMUNICATION ENGINEERING TECHNICIAN**

## **II<sup>nd</sup> YEAR PRACTICALS - III**

**(Max. Marks ; 50, Periods/week:5, Total periods:160)**

### **MEASURING INSTRUMENTS & CONSUMER ELECTRONICS SERVICING LAB**

- |     |  |   |
|-----|--|---|
| 1.  | Conversion of Ammeter into Voltmeter.  | 8 |
| 2.  | Study and use of Analog Multimeter   | 8 |
| 3.  | Study and use of Digital Multimeter  | 8 |
| 4.  | Study and use of Audio Frequency Oscillator  | 8 |
| 5.  | Study and use of AMSSG   | 8 |
| 6.  | Study and use of Digital R-L-C meter.  | 8 |
| 7.  | Measurement of DC and AC Voltage using CRO   | 8 |
| 8.  | Measurement of Frequency and phase using CRO.  | 8 |
| 9.  | Measurement of Modulation Index using CRO.   | 8 |
| 10. | Study and use of pattern generator   | 8 |
| 11. | Study of Battery Eliminator and measurement of standard voltages at various points.    | 8 |
| 12. | Rectify the faults in the Battery Eliminator   | 8 |
| 13. | Study of Electronic Stabilizer and measurement of standard voltages at various points. | 8 |
| 14. | Rectify the faults in the Electronic stabilizer.                                       | 8 |
| 15. | Study of Emergency Light and measurement of standard Voltages at various points        | 8 |
| 16. | Rectify the faults in the Emergency Light.   | 8 |
| 17. | Familiarize with Landline Telephone, Cordless Telephone, Cellphones                    | 8 |
| 18. | Identify the different stages and operating controls of DVD player                     | 8 |
| 19. | Identify the different stages of TV Remote control, Transmitter, receiver              | 8 |
| 20. | Rectify the faults in the TV Remote control Transmitter & Receiver                     | 8 |

## VII. List of Equipment for Electronics and Communication Engineering Technician Lab

### S.No. Name of the equipment specifications Quantity Amount Rs.

1.	Regulated power supply 30V/1A	10	50,000
2.	Digital multimeters	05	15,000
3.	Analog multimeters (Motwane)	08	40,000
4.	Audio signal generator	05	15,000
5.	Oscilloscopes 20 MHZ	04	60,000
6.	RF Voltmeters	05	20,000
7.	AM/FM Signal Generators	05	7,000
8.	Dynamic Radio Demonstration Unit		
	Single band Medium wave	02	8,000
	Two bands	02	800
	Multiple band	02	1,200
9.	Dynamic T.V. Demonstration Model		
	B/W-21'	01	4,000
	Colour-21'	01	12,000
10.	T.V. Pattern generator (monochrome)	02	4,000
11.	Decade Resistance box	10	15,000
12.	Decade Inductance box	10	15,000
13.	Decade capacitance box	10	15,000
14.	Panel meters		
	a) Voltmeters		
	O-IV	02	400
	O-10V	02	400
	O-50V	02	400
	O-100V	02	400
	b) Ammeters		
	0-100MA	02	400
	0-1MA	02	400
	0-10MA	02	400
	0-50MA	02	400

	0-100MA	02	400
	0-500MA	02	400
15.	Tape recorders	02	1,200
16.	Two-in-one	02	2,000
17.	Wobbuloscope	02	20,000
18.	Public Address Amplifiers 100W	02	20,000
19.	Column loud speakers	01	1,600
20.	DVD Player	02	4,000
21.	CD Player	06	9,000
22.	Audio tapes	24	600
23.	CD Vedio & Audio	24	500
24.	Speakers	10	1,000
25.	Experimental Boards		
	1. Transister CB,CE amplifiers	02	3,000
	2. Oscillaters Hartely, colpitts, tuned voltage each two	06	9,000
	3. SCR Characteristics	02	3,000
	4. FET Amplifier	2	3,000
	5. UJT characteristics	2	3,000
	6. Zener diode characteristics	2	3,000
	7. Zener diode voltage regulaters	2	3,000
	8. AM generator	2	3,000
	9. FM generator	2	3,000
	10. Tuned RF amplifier	2	3,000
	11. Class A, RC coupled power amplifier	2	3,000
	12. Class-B, push-pull power Amplifier each two	4	3,000
	13. Crystal control oscillater	2	3,000
26.	Digital frequency counters	10	15,000
27.	Rheostats 5 Amperes	4	4,000
28.	Digital LCR cmeters	4	8,000

29.	Colour T.V.-21'	2	30,000
	Colour T.V.14'	2	18,000
30.	Coaxial cables 100 meters	1	1,200
31.	Balun & other accessories	5	400
32.	Tool kit boxes	10	5,000
33.	Soldering iron with stands	10	2,000
34.	Desoldering pump	10	1,000
35.	Bread Boards	20	2,000
36.	Insulation tester	3	6,000
37.	Battery eliminaters		
	0-3V-45V-6V-9V,12V Tapings	4	600
38.	Emergency light	2	1,000
39.	Inverters 100VA, 500VA each two	4	8,000
40.	Electronic stabilizer	2	1,000
41.	Digital trainers	6	30,000
	To conduct experiments AND, OR,NOT, NAND, NOR EX-OR, EX-OR FLIP-FLOPS RS, JK,T,D, Master slave 7490, shift registers Decoder, seven segment desplay		
42.	Computers	20	4,00,000
43.	Digital IC Tester	04	20,000
	<b>Total</b>		<b>9,36,900</b>

Total cast of the lab is nine lackes, thirty six thousands ninehundreds only.

### **List of Equipment Address**

1. Pacific Electronics  
Trimulgherry  
Secunderabad
2. ITL, Balanagar, Hyderabad.
3. Phillips, Hyderabad
4. Futuretech-Digital equipment, Secunderabad.
5. Physic Tech, Secunderabad.

### **IX. a. Collaboration Institutions for Curriculum Transaction State Board of Technical Education and Training Andhra Pradesh**

#### **b. On Job Training Centres**

Electronic Industries locally available/service centres

### **X. Qualifications for Lecturers**

For J.L. in ECET Vocational

A Second Class Degree BE/B.Tech. in Electronics/Electronics & Communication Engineering/Telecommunication Engineering/with not less than 50% of marks from a recognised university/ AM.IE AMIETE or its equivalent

OR

A DECE/Diploma in Electronics 1st class from SBTET, A.P. with 3 years experience or its equivalent

## **XI. Vertical Mobility**

### **a) With Bridge Course**

1. Admission into IIInd year DECE
2. Admission in to B.Sc. in any university
3. Eligibility to EAMCET

### **b) Without Bridge Course**

Admission into BA/B.Com

### **XI. List of Reference Books:**

1. Electronic Components - D.V.Prasad
2. Electronic Components - Padmanabham
3. Circuit Theory - Schaum Series
4. Principles of Electronics - V.K.Mehta
5. Electronic Devices and Circuits - G.K.Mithal
6. Digital Electronics - R.P.Jain
7. Digital Fundamentals - Malvino & Leach
8. Network Analysis - G.K. Mithal
9. Network & Lines - Umesh Sinha
10. T.V.Engineering - Dhake
11. Radio Communication - G.K.Mithal
12. Colour Television - R.R.Gulati
13. Electronic Communication Systems - Roy Blake
14. Fundamentals of Satellite  
Communication - Raja Ram, PHI
15. Fibre Optic Communication - Kaizer
16. Electronic Measurements &  
Instruments - Copper/ AK. Sahwany

## **XII. LIST OF PARTICIPANTS**

1. Smt. Srimathy,  
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Department, Kamala Nehru Polytechnic for Women,  
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6. Sri. G.M.C. Kesava rao  
Co-ordinator



**VOCATIONAL CURRICULUM-2005**  
(With effect from the Academic Year 2005-2006)

Curriculum of Intermediate Vocational Course  
in  
**ELECTRONICS  
ENGINEERING  
TECHNICIAN**



**STATE INSTITUTE OF VOCATIONAL EDUCATION &  
BOARD OF INTERMEDIATE EDUCATION A.P.  
Nampally, Hyderabad**



## **FOREWORD**

The National Policy on Education (1986) while proposing educational reorganization, placed high priority on the programme of vocationalisation of education. It emphasized that well planned, systematic and rigorously implemented vocational education will create a distinct stream to prepare students for identified occupations encompassing several areas of activity. The primary aim of vocational courses was to cut across several occupational fields and prepare students with employable skills in organized sectors and self employment. Vocationalisation through re-orientation of educational strategies focused on creating a talent pool of skilled youth who are trained in courses relevant to the market and emerging needs of the various sections of the economy.

Inspired by this vision of the National Policy, the Government of Andhra Pradesh introduced Vocational Education at +2 level with an aim to diversify a sizeable segment of students at the senior secondary stage to the world of work. The State Government aimed at reducing the pressures on higher education through empowering youth by harnessing their capabilities. The requirement of skilled manpower industry is being fulfilled by charting a student's career with right options based on aptitude and talent. An right alternative to medical and engineering courses is envisaged in vocationalisation of education in the State.

In view of the changing needs of the students and growing demand for a spectrum of skill competencies in the economy, the Board of Intermediate Education has reviewed the curriculum of Vocational Courses in order to re-orient them based on their viability and practicability. The revised curriculum for Vocational Courses at Intermediate Level will come into effect from the Academic Year 2005-06 1st Year and from Academic Year 2006-07 for 2nd Year students.

I am confident that the revised curriculum will attract more and more students into vocational stream and help them train in need-based, productive courses leading to gainful employment.



**SHASHANK GOEL**

Secretary, BIE



## CONTENTS

I.	Introduction	1
II.	Objectives of the Course	1
III.	Skills to be provided	1
IV.	Job opportunities	1
	[a] Wage Employment	
	[b] Self Employment	
V.	Scheme of Instruction & Examination	2
VI.	Syllabus	3
	[a] Theory	
	[b] Practicals	
VII.	List of equipment	39
VIII.	[a] Collaboration Institutions for curriculum transaction	42
	[b] On the Job Training Centres	42
IX.	Qualification for Lecturers	42
X.	Vertical Mobility	43
	[a] With Bridge Course	
	[b] Without Bridge Course	
XI.	Reference Books	44
XII.	List of Participants	45