

SYLLABUS

For the trade of

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA)

(SEMESTER PATTERN)

(for Visually Impaired and other Disabled)

Under

CRAFTSMAN TRAINING SCHEME (CTS)

**Designed in
2013**

Government of India
Ministry of Labour & Employment
Directorate General of Employment & Training
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
BLOCK EN -81, SECTOR - V, SALT LAKE CITY
KOLKATA - 700 091

List of the members attended the Trade Committee Meeting for designing Syllabus for the trade of **“Computer Operator and Programming Assistant” (COPA)** under Craftsman Training Scheme (CTS), (for Visually Impaired and other Disabled) held on 11th March’2013 at Blind People’s Association, Vastrapur, Ahmedabad, Gujarat.

Shri R.N.Bandyopadhyaya, Director, CSTARI, Kolkata.

Sl. No.	Name & Designation, S/Shri/Smt.	Organisation	Remarks
1	Mr. S. A. Pandav, Joint Director (Training)	Directorate Employment & Training, Gandhinagar	Chairman
2	Mr. L. K. Mukherjee, Dy. Director of Training	Central Staff Training & Research Institute, Kolkata	Member
3	Mr. Nirmalya Nath, Asst. Director of Training	Central Staff Training & Research Institute, Kolkata	Member
4	Dr. Bhushan Punani, Executive Director	Blind People Association, Ahmedabad	Member
5	Mr. G. N. Parekh, RDD (Training)	Directorate Employment & Training, Gandhinagar	Member
6	Mr. K. K. Bhatt, Deputy Director	Vocational Rehabilitation Centre, Ahmedabad	Member
7	Mr. P. B. Vyas, Principal	I.T.I. Kurnagar	Member
8	Ushma Anerao, In- charge Principal	Government Girl’s Polytechnic, Ahmedabad	Member
9	Tejal Lakhia, Hon. Superintendent	I.T.C; Blind People Association, Ahmedabad	Member
10	Chandaben Chauhan, Principal	I.T.I. Vijapur	Member
11	Mr. Ranchhodbhai P.Soni, Teacher	Higher Secondary School for the Blind, Vastrapur, Ahmedabad	Member
12	Vinu Chawla, Consultant	Directorate Employment & Training, Gandhinagar	Member
13	Mr.Girish K. Patel, Hon. Tutor	I.T.C; Blind People Association, Ahmedabad	Member
14	Yatrik B. Buch, I.T. Analyst	Tata Consultancy Service Ltd	Member
15	Anisha Y. Dodiya, I.T. Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
16	Vidhi A. Shah, I.T. Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
17	Kruti K. Shah, I.T. Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
18	Pratibha R. Sharma, Computer Engineer Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
19	Kritika Shrivastava, Computer Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
20	Pooja J. Varaiya, Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
21	Jalashree D. Trivedi, Computer Engineer Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
22	Nirali R. Sheth, Computer Lecturer	Govt. Polytechnic for Girls, Ahmedabad	Member
23	Dipak K. Pandya, I.T. Professional	Cosmic Info Ahmedabad	Member
24	Nainesh J Purohit, I.T. Professional	Lifecare Hospital Pvt. Ltd, Ahmedabad	Member
25	Priti P. Purohit, I.T. Instructor	Deaf Mute School, Navarangpura Ahmedabad	Member

List of members attended the Trade Committee Meeting for Restructuring of Syllabus under CTS (specially for Visually Impaired and other Disabled) on 01 October 2013 at Blind People's Association, Vastrapur, Ahmedabad, (Gujrat)

SL. NO.	NAME & DESIGNATION S/SHRI	REPRESENTING ORGANIZATION	REMARKS
1.	S. A. Pandav, Joint Director	CET, Gandhinagar, Gujarat	Chairman
2.	L.K Mukherjee, Dy Director	CSTARI Kolkatta	Member
3.	Dr. Bhushan Punani, Executive Director	Blind People's Association, Ahmedabad	Member
4.	Harish Panchal, Director (Trg.)	Blind People's Association, Ahmedabad	Member
5.	Nandini Rawal, Director (Project)	Blind People's Association, Ahmedabad	Member
6.	Tejal S. Lakhia, Hon. Superintendent	Blind People's Association, Ahmedabad	Member
7.	Mr. Ranchhod Soni	Higher Secondary School for The Blind Vastrapur, Ahmedabad	Member
8.	Mr. Mihir Das	JBS Academy, Ahmedabad	Member
9.	Mrudangi Trivedi	ABS Academy Pvt. Ltd., Ahmedabad	Member
10.	Jagruti V. Chaudhary	Blind People's Association, Ahmedabad	Member
11.	Hetal S. Ram Raliya	Blind People's Association, Ahmedabad	Member
12.	Dhingani Nalin H	Technical Institute, Ahmedabad	Member
13.	Kalyanee D. Dani	I.T.I., Ahmedabad	Member
14.	Hemal D. Punlit	I.T.I. Women, Thaltej, Ahmedabad	Member
15.	Vina Chawla	Emp. And Training H.O. Gandhinagar	Member
16.	Chanda Chawhan	I.T.I. Vijapur, Dist.-Meshana	Member
17.	Trivedi Jatin	Mahila ITI, Theltej	Member
18.	Smt. Harsha J. Shet	Mahila ITI, Theltej	Member
19.	Hansh G. Dave	Jasmine Beauty Care, Ahmedabad	Member
20.	Sipai Jakir J.	Blind People's Association, Ahmedabad	Member
21.	Jagdish jenabhai Parnar, Craft Instructor	Blind People's Association, Ahmedabad	Member
22.	Beenal Bharat Kumar Modi, Instructor	Blind People's Association, Ahmedabad	Member
23.	Vasant Kamdar, VI	ITI, Palana	Member
24.	Satish S. Charan, Asst. App. Advisor	CET, Gandhinagar, Gujarat	Member

GENERAL INFORMATION

1. **Name of the Trade** : **Computer Operator and Programming Assistant
(for visually impaired and other disabled)**
2. **N.C.O. Code No** : **2139.40,2132.10**
3. **Duration of Craftsman Training:** **One year (Two Semesters)**
4. **Entry Qualification** : Passed class X examination of 10 + 2 pattern or an equivalent examination. Candidate should be Visually impaired /Hearing impaired /other Disabled
5. **Unit Strength** : **10 Trainees**
6. **Space Norms** : **35 Sq. Mtrs.**
7. **Power Norms** : **3.45 Kw**
9. **Qualification for Instructor** :

Passed 3 years Diploma in Computer Science / Engineering / Technology from recognized board or institution with 2 years working experience in the relevant field.

OR

Passed MCA/ B.TECH/BE (Computer Science/ Engineering/ Technology) from recognized University with 1 Year working experience in the relevant field.

OR

Pass in BCA/BSc Computer Science/ DoEACC A Level from recognized University with 2 years working experience in the relevant field,

OR

NAC OR NTC holder in relevant trades with three Year Experience

At least one Instructor must have Degree / Diploma in relevant field

Note: It will be responsibility of the Training Centre to impart training in plus curriculum (like Braille, Orientation & Mobility, Activities of Daily Living), total communication, use of assistive devices, adaptations for barrier free environment and technology.

Visually Impaired and other such Disabilities requiring support should be provided Writer (one standard below Trade Entry Level) during examination and given 30 Minutes more than the prescribed time.

**SYLLABUS FOR THE TRADE OF COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA), SPECIALLY FOR VISUALLY IMPAIRED AND OTHER DISABLED UNDER CRAFTSMAN TRAINING SCHEME
DURATION : SIX MONTHS**

**FIRST SEMESTER
SEMESTER CODE: COP:SEM I**

Week No.	Trade Practical	Trade Theory
1	Using WINDOWS <ul style="list-style-type: none"> □ Start windows □ Using different windows simultaneously □ Moving through widows and mouse □ Maximum/Minimum windows □ Use of help feature □ Exit windows □ Starting an application □ Run and Manage multiple application □ Close applications Using the program Manager □ Create/Add Groups using Program Manager □ Move/Copy/Delete Program Items. □ Change Programmed/their properties □ Expand compressed directories and files □ Multiple Windows 	History of Computer <ul style="list-style-type: none"> □ Abacus of ENIAC, Computer Generations, Languages, Software and application, Computers in India. Computers - An Introduction □ Functions of Computer: input, processing, output, Functions of ALU, control, storage, input and output devices. □ Application of Computers: viz. Railway Reservation, Electricity / Telephone Billing and (include some e-governance applications according to respective States.) □ Networks of Computers- Homogenous, Heterogeneous Characteristics (State Wide Area Network (SWAN) concept) □ Clock Speed □ Accuracy
2-3	Using the program Manager <ul style="list-style-type: none"> □ Create/Add Groups using Program Manager □ Move/Copy/Delete Program Items. □ Change Programmed/their properties □ Expand compressed directories and files □ Multiple Windows Using Desktop ICONS □ My Computer □ Network Neighborhood □ Control Panel □ Add Printer □ Create/Delete/Rename/Folder File Management through Windows □ Select File snag Directories □ Copy, Move, Delete, 	Functions <ul style="list-style-type: none"> □ Bits, bytes characters, field record, file. Representation of data: □ Binary addition and subtraction, octal, hexadecimal, ASCII, EBCDIC, positive versus negative integers, floating point numbers. □ Higher level and Lower language.

	<p>Files/Directories</p> <ul style="list-style-type: none"> □ Disk Operations using File Manage <p>Using Essential Accessories</p> <ul style="list-style-type: none"> □ Starting and Using Text Editors □ Type and Edit text in a document in Text Editors 9 □ Save and Print a document file in Text Editors □ Starting and using paintbrush □ Printing a drawing 	
4	<p>Basic Shell Commands of LINUX</p> <ul style="list-style-type: none"> □ Date, echo, who, is, cp, rm, mv, cd, 	<p>Computer Hardware; electronic digital computer.</p> <ul style="list-style-type: none"> □ Input device: on line data input devices & their importance, dumb terminals, voice recognition devices, Touch tone terminals, Mouse. □ Office data input: key to disk system
5	<ul style="list-style-type: none"> □ Mk dir, rm dir, chmod, sort, grep, passwd, etc. 	<p>Source data input: point of sale terminals, laser beam scanners, optical sense readers, optical characters readers (OCR), and magnetic ink character readers (MICR).</p> <ul style="list-style-type: none"> □ Output device: Hard copy device -Dot matrix printer, ink jet printer, laser printer, plotter output.
6-7	<p>Designing web-pages(Static)</p>	<p>Soft copy device: VDU (monochrome color), LCD (liquid crystal display), audio response unit:</p> <ul style="list-style-type: none"> □ CPU architecture: Overview with data flow □ Memory device: Classification of Primary Memory Devices and Flash Memories. □ Secondary memory device; Hard disk (removable/fixed), advantage and limitations of secondary storage devices & DVD Writers or Blu-ray Writers. □ Removable Drive like Pen drives and external storage devices. Serial, Parallel and USB Ports.
8-9	<p>Setup the Internet Connection & Sharing(Proxy Setup &Leased Line Setup)</p> <p>Designing web-pages, Static & Dynamic.</p>	<p>Internet connection setup & sharing. Protocols TCP/IP, ISP, NSP ETC.</p> <ul style="list-style-type: none"> □ Concept of sites & pages Introduction to HTML, DHTML,XML,

10-11	<p>Concepts of Web Hosting, Web server, Application server, Database Server</p>	<ul style="list-style-type: none"> □ Information concepts and processing: Evolution of Information Processing, data information, language and Communication. □ Definition of Information: difference between Data and Information. Data concepts: symbols which describe records reality: logical and physical concepts. □ Logical concepts of data: Entities, Attributes and Relationship. □ Physical concepts: Storage and Retrieval of data; comparison of manual and computer storage and organization of data as files. □ Data processing: Storage, retrieval and processing of data as files. □ Data processing: Storage, retrieval and processing of data, provision of Information of relevance. □ Techniques/Methods of Data processing. □ Methods of Data Security like backup, online backup, restoration etc
12-14	<p>Measuring Main Supply, Earth voltage & checking earthing.</p> <ul style="list-style-type: none"> □ Precautionary measures in Handling /Operating. - VCD, CD, HDD, FDD, DVD, SCANNER - Modem, Keyboard, Mouse, Hub, Monitor □ Printers: Dot Matrix, Inkjet, Laser - Feeding paper - Installing the cartridge - Refilling the cartridge. □ Backup and Restore of DATA - Scheduling - Management Plans etc. 	<p>Flow Charts</p> <ul style="list-style-type: none"> □ Illustrations with summing series, sorting, searching merging Analysis of algorithms-space and time tradeoffs. Program documentation, style in programming, program testing, low chart and Data flow Diagrams. □ Program testing and debugging efficient programming techniques Structured programming
15-16	<p>Basic C Programming</p>	<p>Introduction to C</p> <ul style="list-style-type: none"> □ Overview of C □ Constants, Variables, and Data type □ Operators and Expression □ Managing Formatted / Unformatted Input and Output
17-18	<p>Programming On C on control structures(if-else, switch case, Loops etc.) Arrays</p>	<p>Decision making and Branching</p> <ul style="list-style-type: none"> □ Decision Making looping □ Arrays
19-21	<p>Programming On C on Strings, Functions</p>	<ul style="list-style-type: none"> □ Handling of Character Strings □ User defined Functions

22-24	Programming On C on Pointers, structures and unions	Structures and Unions <input type="checkbox"/> Pointers <input type="checkbox"/> File management in concepts
25	Project work /Industrial Visit (optional)	
26	Examination	

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SECOND SEMESTER

SEMESTER CODE: COP:SEM II

1-2	<p>Basics of Word processing</p> <ul style="list-style-type: none"> <input type="checkbox"/> Text selection <input type="checkbox"/> Opening Documents and Creating Documents <input type="checkbox"/> Saving Documents/Quitting Documents <input type="checkbox"/> Cursor control <p>Programming on Creating Simple Applications in VB</p>	<p>Approaching ASP.NET starting with Visual Basic .NET</p> <p>Features of Visual Basic , Editions of Visual Basic, Visual Basic Terminology</p> <ul style="list-style-type: none"> <input type="checkbox"/> Visual Basic Terminology, Working in the development environment <input type="checkbox"/> Event-Driven Programming <input type="checkbox"/> Creating a program in Visual Basic, project and executable files <input type="checkbox"/> Visual Basic Reference Materials
3-4	<p>Printing Documents</p> <ul style="list-style-type: none"> <input type="checkbox"/> Using the interface(Menu, toolbars) <input type="checkbox"/> Editing Text (Copy, delete, Move etc.) <input type="checkbox"/> Finding and replacing Text 	<p>Visual Basic.NET Fundamentals.</p> <p>Introduction to Objects</p> <ul style="list-style-type: none"> <input type="checkbox"/> Controlling objects <input type="checkbox"/> Properties , Methods and Events <input type="checkbox"/> Working with Forms <input type="checkbox"/> Introduction to controls <input type="checkbox"/> Basic controls <input type="checkbox"/> Creating a Visual Basic Applications
5-6	<ul style="list-style-type: none"> <input type="checkbox"/> Practicing in Regional Language. Document Enhancement <input type="checkbox"/> Adding borders and shading, Headers and Footers <p>Setting Up Multiple columns, Sorting blocks, margins and hyphenating documents Programming on VB.Net</p>	<p>Working with Code and Forms</p> <ul style="list-style-type: none"> <input type="checkbox"/> Automatic Code completion features <input type="checkbox"/> Interfacing with the user <input type="checkbox"/> Using the Message box Functions <input type="checkbox"/> Using the Input box functions <input type="checkbox"/> Working with code statements <input type="checkbox"/> Managing forms <input type="checkbox"/> Working with Forms
7-8	<ul style="list-style-type: none"> <input type="checkbox"/> Creating Master Document, Data source <input type="checkbox"/> Merging Documents <input type="checkbox"/> Using mail merge Feature for Labels and envelopes <p>Graphics and using Templates and Wizards Revision & Sessional Exam Programming on VB.Net</p>	<p>Overview of variables</p> <ul style="list-style-type: none"> <input type="checkbox"/> Declaring Variables <input type="checkbox"/> Variable scope <input type="checkbox"/> Using Arrays <input type="checkbox"/> User-Defined data types <input type="checkbox"/> converting data types <input type="checkbox"/> Using Constants <input type="checkbox"/> Working with Procedures <input type="checkbox"/> Working with dates and times <input type="checkbox"/> Using the Format function <input type="checkbox"/> Manipulating Text strings <input type="checkbox"/> Writing Procedures
9-10	<p>Usage of Ms-Excel Worksheet Basics</p> <ul style="list-style-type: none"> <input type="checkbox"/> Data Entry in cells, entry of numbers, text and Formulae 	<p>Comparison and Logical Operators</p> <ul style="list-style-type: none"> <input type="checkbox"/> Using If....Then Statements <input type="checkbox"/> Using select.. .case statements <input type="checkbox"/> Overview of Looping structures

	<ul style="list-style-type: none"> <input type="checkbox"/> Moving data in a Worksheet <input type="checkbox"/> Moving around in a Worksheet <input type="checkbox"/> Selecting Data range <input type="checkbox"/> Using the interface (Toolbars, Minus) <input type="checkbox"/> Editing basics <input type="checkbox"/> Working with workbooks <input type="checkbox"/> Saving and quitting <input type="checkbox"/> Cell Referencing Programming on VB.Net 	<ul style="list-style-type: none"> <input type="checkbox"/> Using Do...Loop structures <input type="checkbox"/> For...Next Statement <input type="checkbox"/> Exiting a Loop <input type="checkbox"/> Controlling Program Flow While, Do While, Else If loop, SWITCH Case
11-12	<p>Calculations and Worksheets-Using Auto fill</p> <ul style="list-style-type: none"> <input type="checkbox"/> Working with formulae <input type="checkbox"/> Efficient Data Display with Data formatting number formatting etc./ <input type="checkbox"/> Working with ranges <input type="checkbox"/> Worksheets printing <p>Programming on ASP.Net</p>	<p>Types of Errors</p> <ul style="list-style-type: none"> <input type="checkbox"/> Break Mode <input type="checkbox"/> Using the Debug Toolbar <input type="checkbox"/> Using the Watch Window <input type="checkbox"/> Using the Immediate Window <input type="checkbox"/> Using the locals window <input type="checkbox"/> Tracing Program Flow with the call stack <input type="checkbox"/> Using visual Basic debugging tools
13	<p>Adding/Formatting Text data with Auto format</p> <ul style="list-style-type: none"> <input type="checkbox"/> Changing chart types <input type="checkbox"/> Creating separate, chat sheet <input type="checkbox"/> Adding titles, legends and gridlines <input type="checkbox"/> Printing charts. <p>Programming on ASP.Net</p>	<p>Types of controls</p> <ul style="list-style-type: none"> <input type="checkbox"/> Overview of Standard Controls Using combo box and list Box controls <input type="checkbox"/> Using option button and Frame Control
14	<p>Finding Records With Data form</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adding/Deleting records. <input type="checkbox"/> Filtering records in a worksheet <p>Programming on ASP.Net</p>	<ul style="list-style-type: none"> <input type="checkbox"/> working with selected text <input type="checkbox"/> Advanced Standard Controls <input type="checkbox"/> Active x controls <input type="checkbox"/> Insertable Objects <input type="checkbox"/> Working with controls <input type="checkbox"/> Login, Validation & Navigation Control
15	<p>Programming on ASP.Net</p>	<p>Overview of Active x Data objects</p> <ul style="list-style-type: none"> <input type="checkbox"/> Visual Basic data Access Features <input type="checkbox"/> Relational Database concepts <input type="checkbox"/> Using the ADO Data control to access data <input type="checkbox"/> Structured Query Language (SQL) <input type="checkbox"/> SQL connection <input type="checkbox"/> Manipulated Data <input type="checkbox"/> Using the Data Form Wizard <input type="checkbox"/> Accessing Databases <input type="checkbox"/> Back up & Restore Procedure
16	<p>Programming on ASP.Net</p>	<p>Field - Level Validation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Using Text Box Properties to Restrict Data Entry
		<ul style="list-style-type: none"> <input type="checkbox"/> Using the Masked Edit Control <input type="checkbox"/> Form-Level Validation <input type="checkbox"/> Form Events Used When Validating Data

17	Programming on ASP.Net	<p>Overview of Run-Time Errors</p> <ul style="list-style-type: none"> <input type="checkbox"/> Overview of the Error -0 Handling Process <input type="checkbox"/> The Err Object <input type="checkbox"/> Errors and the Calling Chain <input type="checkbox"/> Errors in an Error-Handling Routine <input type="checkbox"/> Exception Handling <input type="checkbox"/> Inline Error Handling <input type="checkbox"/> Error - Handling Styles <input type="checkbox"/> General Error - Trapping Options in Visual Basic.NET <input type="checkbox"/> Error Trapping - Exception Handling
18	Programming on ASP.Net	<p>Menus</p> <ul style="list-style-type: none"> <input type="checkbox"/> Status Bars <input type="checkbox"/> Toolbars <input type="checkbox"/> Adding Menus - Hyperlink Drag-and-Drop Operations <input type="checkbox"/> Overview of Drag-and-Drop Features <input type="checkbox"/> Mouse Events <input type="checkbox"/> Drag-and-Drop Editing Basics <input type="checkbox"/> Adding Drag and Drop
19-20	Programming on ASP.Net	<p>Collections</p> <ul style="list-style-type: none"> <input type="checkbox"/> Using Control Arrays <input type="checkbox"/> Finishing Touches <input type="checkbox"/> User Interface Design Principles <input type="checkbox"/> Distributing and Application <input type="checkbox"/> Creating a Default Project <input type="checkbox"/> Review: Steps to Creating a Visual Basic Program <input type="checkbox"/> Development Resources <input type="checkbox"/> Using the Package and Development Wizard - Web Services
21	Practice on My SQL Creating Tables, Inserting Data in a Table, Using simple query	<p>X-base package (T-55, P-200) - using My SQL and MS-Access</p> <ul style="list-style-type: none"> <input type="checkbox"/> What is Database Management System (RDBMS) and Relational Database Management System (RDBMS)
22	Practice on My SQL Updation, Deletion query	<ul style="list-style-type: none"> <input type="checkbox"/> Introduction to SQL o What is SQL? <input type="checkbox"/> Data Definition Language (DDL) and Data Manipulation Language (DML)
23	Practice on MS Access Creating Table, From	<p>Introduction to Atomic Concurrent Integrated Durable (ACID) Properties.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Expression o Select commands <input type="checkbox"/> Using Numeric, Concatenation operator, Date, Dual Table, null values
24	Practice on MS Access Query, Report	Awareness of IT -Act 2000, its Amendments and

		Phenomena (T-5) <ul style="list-style-type: none"><input type="checkbox"/> Provisions of act<input type="checkbox"/> Types of offences, fines, imprisonment<input type="checkbox"/> Cyber Crime, Cyber Law<input type="checkbox"/> E-Commerce Basics (Overview of B2B, B2C, C2C), Online transactions
25	Revision	
26	Examination	

List of Tools and Equipments (For a unit of 10 trainees)

For the trade of **COMPUTER OPERATOR AND PROGRAMMING ASSISTANT** under CTS

SL. No.	Name of the items	Quantity
1	Laptop : i3 2 nd generation processor or equivalent and above with major minimum features as below: - 1) Speed :- 2.1 GHz or Higher. 2) Cache Memory : - Minimum 3 MB or better. 3) RAM :- 4 GB DDR-III or Higher. 4) Hard Disk Drive :- 500GB or Higher,5400 rpm(minimum) or Higher, WiFi Connectivity. 5) Network Card : Integrated Gigabit Ethernet^ 0/100/1000). 6) Paper Licensed Operating System / OEM Pack(Preloaded). 7) Antivirus / Total Security - 01 NO.	1 No.
2	Server for LAN Xeon Latest 32/64 bit processor or Higher with PCI Express Video Card 4GB VRAM 4 GB RAM or higher 22" TFT Keyboard, Mouse, DVD OR BLU-RAY WRITER with latest license of OS - Server Edition Internet, Antivirus - Server Edition & UPS for Power Back up.	01 No.
3	WORKSTATION/NODES : 2 ^{na} Generation Core i3 Processor or Equivalent and above with major minimum features as below : 1) 32/64 Bit Processor (3.06 GHz or Higher,4 MB 4-Core) or Higher. 2) Network Card : Integrated Gigabit Ethernet^ 0/100/1000). 3) RAM : 2 GB or Higher. 4) 320 GB / 500 GB HDD or Higher. 5) 19" TFT Monitor 6) DVD Writer 7) PS2 / USB Key Board , USB/Optical Mouse with latest Paper Licensed Operating System / OEM Pack(Preloaded) Professional/Ultimate Edition with Internet Facility.	5 Nos.
4	24 PORT SWITCH WITH WIRELESS CONNECTIVITY	As required
5	LAB should have Structured cabling	As required
6	Internet or Intranet Connectivity	As required
7	RJ 45 CONNECTORS	As required
8	CAT-6 CABLE FOR LAN	As required
9	500 VA or higher off - line UPS FOR NODES	5 Nos.
10	LASER PRINTER	1 No.
11	Network MONOCHROME LASER PRINTER	1 No.
12	OPTICAL SCANNER (DESK TOP TYPE)	1 No.
13	WEB CAM (DIGITAL CAMERA)	1 No.
14	DVD OR BLU-RAY WRITER	2 Nos.
15	Standalone HARD DISKS	4 Nos.
16	LCD PROJECTOR	1 No.
17	Network Rack	1 No.
18	LAN Setup	As required
19	Data Recovery Software	As required

20	DSL Wireless Router	01 No.
21	Wireless Router	01 No.
B. SOFTWARE		
1	Software: OS, VISUAL STUDIO, Linux or any Open Source Software., Turbo C , JVM Antivirus for - clients / workstations in profile with validity of a year or more that can be procured on expiry. NOTE- LATEST VERSION OF HARDWARE AND SOFTWARE should be provided NOTE: ALL ABOVE WILL BE ACADEMIC VERSIONS EXCEPT FOR ANTIVIRUS	
C. LIST OF OTHER ITEMS/ FURNITURE		
1	Vacuum cleaner	01 No.
2	Pigeon hole cabinet : 20 compartments	01 No.
3	Chair and table for the instructor - 01 each (for class room & laboratory)	
4	Dual Desk or Chair and Tables for Trainees	10 Nos.
5	Computer table sunmica top 150X650X750 mm with sliding tray for key board and one shelf of storage	5Nos.
6	Operators chair (without arms mounted on castor wheels, adjustable height	10 Nos.
7	Wall clock	01 Nos.
8	Printer table 650X500X750mm can be varied as per local specifications	02.Nos.
9	Window or Split type Air conditioners 1.5 tons	03.Nos.
10	Storage cabinet 60X700X450mm	01Nos.
11	Inter active Board.	1 No.
12	2D Bar Code Reader	1 No.

NOTE- LATEST VERSION OF HARDWARE AND SOFTWARE **May Preferably** be provided.

A list of Latest Hardware for the Blind and Low Vision is given below:

- **Computers Access**
 - JAWS Talking Software for computers - *Also Supports Hindi and other vernacular languages*
 - Type Ability Talking Keyboard Learning Software
 - Talking Typing Software for young learners
 - MAGic Screen Magnification Software
 - MAGic Large Print Keyboard
- **Talking Portable Notetaker**

- **STAND ALONE TEXT READERS**
- **INSTANT TEXT READERS/ MAGNIFIERS - COMPUTER SUPPORTED**
- **COMPUTER SUPPORTED OCR SCANNING & READING SOFTWARE**
- **DAISY Talking Book Recorders, Players & Software**
- **Educational Aids & Devices**
 - ANGEL PRO Low Cost Talking All In One - Daisy Reader/ E-Book Reader/ MP3 Player/ Radio/ Voice Recorder
 - Talking Dictionary
 - Talking Scientific Calculator
- **Mathematics Educational Software**
- **INDEX V4 Braille Printers/ Embossers & Braille Presses**
- **Tactile Graphics Production**
 - PIAF Tactile Image Maker
 - Special Non Tearable Tactile Graphic Paper
- **Vision Screener Software**