

MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI

1	Name of Course	Certificate Course in Cable TV Operator				
2	Max no. of Students	25		Course Code - 301119		
3	Duration	6 month				
4	Course Type	Full Time				
5	No. of Days per week	6 days				
6	No. of hours per day	7 Hrs				
7	Space require	Theory Class Room – 200 sqft Practical Lab – 1000 sqft Total – 1200 sqft				
8	Entry qualification	S.S.C. Pass				
9	Objective of syllabus	To understand basic electronics used in TV operation, To understand various technologies used in Cable TV, To install, operate and maintain Cable TV network.				
10	Employment opportunities	Cable TV Operator own business, or worker in Cable TV Service Center.				
11	Teachers Qualification	Diploma in Electronics and 1 year Experience				
12] Teaching Scheme – Training System for 6 Month						
Training System per Week						
		Theory	Practical	Total		
		12 Hours	30 Hours	42 Hours		
13] Examination Scheme –						
Sr	Paper code	Name of Subject	TH/PR	Hours	Max. Marks	Min Marks
1	30111911	Cable TV Operation and Maintenance	Theory – I	3 Hrs	100	35
2	30111921	Basic Information Technology	Practical – I	3 Hrs	100	50
3	30111922	Cable TV Operation and Maintenance	Practical - II	6 Hrs	200	100
		Total			400	185

Cable TV Operator and Maintenance

Basic Training (One week) Familiarisation with the Trade : Its functioning, Networking system ; Observations of Safety Precautions required for the trade.

Theory - I Cable TV Operation and Maintenance	Practical – II Cable TV Operation and Maintenance
Introduction to Basic Electricity : Current , Voltage, Resistance, Introduction, Capacitance, their relations. Ohm's Law, Kirchhoff's AC and DC circuits- their nature. Cells of various types- their characteristic. Measurement of Electrical Parameters, use of various measuring instruments.	Familiarisation on Antenna of various types; Installation of Antenna –its alignment etc.
Introduction to Basic Electronics : Semiconductors – materials, charge, P-type & N type materials- their properties, uses P-N junctions, forward & reversed bias, Power Diodes, Varactor Diode, Zener Diode, LEDs, LCDs. Transistors- bipolar, Unipolar, FET, MOS-FET, Amplifiers, oscillators etc.	Practice on Satellite Tracking- manual, motorised, remote control.
Digital Electronics : Decimal, Binary systems, Conversions; logic gates- truth Tables; Integrated Circuits- Analogue & Digital, their use. ALU, ROM, RAM, PROM, EPROM- their functions, Micro- Processors.	Receiving of Polarisation signals- Vertical and Horizontal polarisation .
TV Communication : Satellite Communication System : Up link, Down Link, C-Band , S-Band, Ku-Band Transmissions.	Practice on measurement of out put power, channel frequencies, Use of dB – Meter etc.
Types of Antenna : Dish Antenna- sizes, reflection, focal length, alignment, looking angles etc. Alignments, Looking angles, Method of Tracking- manual & motorised, low noise Block, LNB –its position and alignment ; Receivers- Its Power output, Frequency in different channels, Power Measurement, Channel Frequency.	Distributing signals from main line- Wiring, Installation of Splitters, Tap off, Finding the cable –loss, Power loss of different channels, Line maintenance- Indoor and Outdoor.
Cables used for transmission: Types – co-axial, optical etc. their characteristics, Line loss and its relation with frequencies, capacity etc.	Familiarisation with the Mixers, practice on balancing the gain of different channels, Overlapping etc.
Channel Modulators- their adjacent channel modulators, channel width, gain etc. Types of Mixers- their functions, application, gain of different channel, Overlapping, method of balancing.	Installation of Line Amplifiers, Power Pass Amplifiers, Line Extenders, Practice of gain adjustment of various amplifiers.

Line Amplifiers, wide band amplifiers, method of adjustment of gain for different amplifiers, wide band amplifiers.	Line Loss management.
Digital Transmission; digital receivers, Spectrum Analysers- its operation & uses fault finding methods in cable – TV Net work; Procedure of removing snags etc.	Exercise in fault finding in Cable Net work, Rectification of faults/snags etc

Practical - I - Basic Information Technology

A] Computer Fundamental	
1] Fundamentals Of Computer Introduction Components of PC The system Unit Front part of system Unit Back part of system Unit CPU Memory of computer Monitor Mouse, Keyboard Disk, Printer, Scanner, Modem, Video, Sound cards, Speakers	List of Practical 1. Working with Windows 2000 desktop ,start icon, taskbar, Recycle Bin, My Computer icon ,The Recycle Bin and deleted files Creating shortcuts on the desktop 2. The Windows 2000 accessories, WordPad – editing an existing document, Use of Paint – drawing tools The Calculator, Clock 3. The Windows Explorer window, concept of drives, folders and files? Folder selection techniques, Switching drives, Folder creation, Moving or copying files, Renaming, Deleting files ,and folders 4. Printing, Installing a printer driver, Setting up a printer, Default and installed printers, Controlling print queues, Viewing installed fonts, The clipboard and 'drag and drop', Basic clipboard concepts Linking vs. embedding,
2] Introduction To Windows 2000/Xp Working with window Desktop Components of window Menu bar option Starting window Getting familiar with desktop Moving from one window to another Reverting windows to its previous size Opening task bar buttons into a windows Creating shortcut of program Quitting windows	5. Moving through a Word document menu bar and drop down menus toolbars 6. Entering text into a Word 2000 document, selection techniques Deleting text 7. Font formatting keyboard shortcuts 8. Paragraph formatting Bullets and numbering 9. Page formatting What is page formatting? Page margins Page size and orientation Page breaks, Headers and footers 10. Introducing tables and columns
3] GUI Based Editing, Spreadsheets, Tables & Presentation Application Using MS Office 2000 & Open Office.Org Menus Opening, menus, Toolbars, standard toolbars, formatting toolbars & closing Quitting Document , Editing & designing your document Spreadsheets Working & Manipulating data with Excel Changing the layout Working with simple graphs Presentation Working With PowerPoint and Presentation	11. Printing within Word 2000 Print setup Printing options Print preview 12. Development of application using mail merge Mail merging addresses for envelopes Printing an addressed envelope and letter 13. Creating and using macros in a document 14. Creating and opening workbooks Entering data 15. Navigating in the worksheet Selecting items within Excel 2000 Inserting and deleting cells, rows and column Moving between worksheets, saving worksheet, workbook
4] Introduction To Internet What is Internet Equipment Required for Internet connection Sending &receiving Emails Browsing the WWW Creating own Email Account Internet chatting	16. Formatting and customizing data 17. Formulas, functions and named ranges 18. Creating, manipulating & changing the chart type 19. Printing, Page setup, Margins Sheet printing options, Printing a worksheet 20. * Preparing presentations with Microsoft Power Point. Slides and presentations, Opening an existing presentation , Saving a presentation

<p>5] Usage of Computer System in various Domains Computer application in Offices, books publication data analysis ,accounting , investment, inventory control, graphics, database management, Instrumentation, Airline and railway ticket reservation, robotics, artificial intelligence, military, banks, design and research work, real-time, point of sale terminals, financial transaction terminals.</p>	<p>21. Using the AutoContent wizard ,Starting the AutoContent wizard, Selecting a presentation type within the AutoContent wizard Presentation type Presentation titles, footers and slide number 22. Creating a simple text slide, Selecting a slide layout Manipulating slide information within normal and outline view, Formatting and proofing text, Pictures and backgrounds, drawing toolbar, AutoShapes, Using clipart, Selecting objects, Grouping and ungrouping objects, The format painter</p>
	<p>23. Creating and running a slide show, Navigating through a slide show, Slide show transitions, Slide show timings. Animation effects 24. Microsoft Internet Explorer 5 & the Internet Connecting to the Internet The Internet Explorer program window, The on-line web tutorial Using hyper links, Responding to an email link on a web page 25. Searching the Internet, Searching the web via Microsoft Internet Explorer, Searching the Internet using Web Crawler, Searching the Internet using Yahoo, Commonly used search engines</p>
<p>6] Information technology for benefits of community Impact of computer on society Social responsibilities Applications of IT Impact of IT Ethics and information technology Future with information technology</p>	<p>26. Favorites, security & customizing Explorer Organizing Favorite web sites Customizing options – general, security, contents, connection, programs, advanced 27. * Using the Address Book Adding a new contact Creating a mailing group, Addressing a message, Finding an e-mail address 28. Using electronic mail, Starting Outlook Express Using the Outlook Express window, Changing the window layout, Reading file attachment, Taking action on message-deleting, forwarding, replying 29. Email & newsgroups, Creating and sending emails Attached files, Receiving emails, Locating and subscribing to newsgroups, Posting a message to a newsgroup 30. Chatting on internet, Understating Microsoft chat environment, Chat toolbar</p>

List of Books

Computer Fundamental

- 1] Vikas Gupta Comdex Computer Course Kit First Dreamtech
- 2] Henry Lucas Information Technology for management 7Th Tata Mc-Graw Hills
- 3] B.Ram Computer Fundamentals Architecture and Organisation Revised 3rd New Age International Publisher

List of Tools and Equipment

A] General Class room

Sr	Name of Item	No.
1	Steel lockers 8 compartments with individual lockers (1980 x 910 x 480 mm)	4
2	Chair with writing pad	25
3	Steel almari with self 6.5' x 3' (18 gauge)	2
4	Steel table 4' x 3'	2
5	Teacher chair	2

B] For Computer Fundamental and CAD Practical

Sr	Name of Item	No.
1	Computer System P4 with accessories Complete with license OS. compatible for- to run AutoCAD 2010 and Windows 7 OS.	5+1
2	Plotter- HP Design Jet 500 latest model	1
3	Scanner	1
4	Computer table	5+2
5	Chair for computer	10+2
6	Laser Printer	1
7	M. S. Office Software	1
