



# Mahendra Technical Institute

## Diploma In CCTV Installation Technician

### SYALLBUS

#### 1. Basic Electronic Concept and Use Multimeter

- 1) Formation of Current AC/DC.
- 2) Checking Speaker, Ringer, Vibrator, Mic, Battery, LED
- 3) PCB Cool testing and hot testing.
- 4) Resistor- Symbol, Function, Denoting Letter, Solid Type Resistor Color Coding, SMD Type Resistor Coding, Value measurement by Multimeter and SMD Tester.
- 5) Capacitor – Function, Types, Symbol, Identification of Solid Type and SMD Type Capacitor, Testing of Capacitor by MultiMate and SMD Tester, Value measurement by SMD Tester.
- 6) Coil – Function, Symbol, Denoting Letter, Types of material, Properties of Coil, Identification of Solid and SMD type coil, Pack coil, Testing of Coil.
- 7) Diode: Function, Symbol, Denoting letter, Identification of Solid and SMD Type Diode, Types of Diode, Testing of Diode, Anode and Cathode Concept
- 8) Transistor: Introduction, Types, Symbol, Denoting Letter, PNP and NPN Concept, Testing of Transistor, Function etc.
- 9) Mosfet: Introduction, Types, 3 leg Mosfet, 8 Leg Mosfet, Identification of N-Channel and P-Channel Mosfet, Testing of Mosfet, Dual Mosfet Concept, Switching Concept Etc.
- 10) Crystal: Introduction, Concept of Quartz, Clock and Pulse, Measuring unit, Types and Real Shape.
- 11) Types Of IC.

## 2.CCTV Operating.

- 1.Computer Hardware.
- 2.Installation of OS.
- 3.Installation of CCTV Setup.
- 4.Introduction Type of Camera IP cameras
- 5.Types of CCTV

## 3.Power Supply.

- 1.Type of Power Supply
- 2.Connection of Power Supply
- 3.Voltage and Current
- 4.Video and Amp. Drop Cable
- 4.Type of Cable
- 5.Gauge of Cable
- 6.Use and application of Cable Multi Plexel.
- 7.Types of multi Plexel
- 8.Audio Switchers
- 9.Type of Switchers One Way / Two Way / Matrix Five Pin Connector



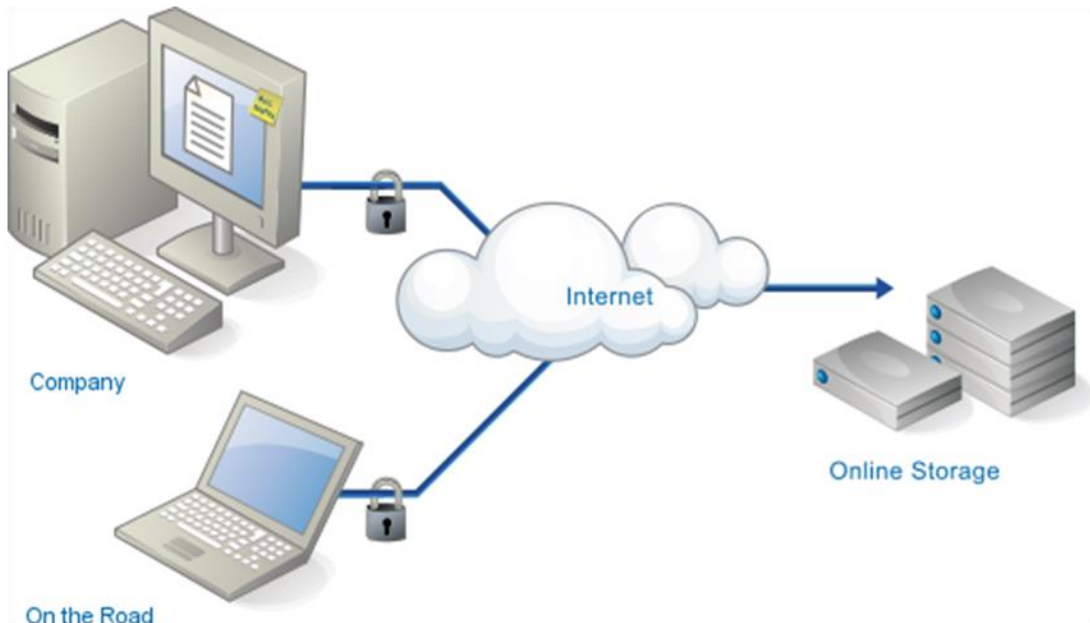
## **4.DVR (Digital Video Recorder).**

- 1.Connection Diagram for DVR Card (Software based)**
- 2.System Requirement for DVR Card Installation**
- 3.Types of DVR Card like BNC,VGA,DVI Model**
- 4.DVI Port Pin Details**
- 5.Various Channel DVR Card Types, Video Output,**
- 6.Specification and Model Explanation**
- 7.Laptop DVR Card Concepts**
- 8.DVR Wireless Kit Concepts**
- 9.Recording format Jpeg, Mpeg Difference**
- 10.How to Set Dynamic DND**



## **5.Data & Storage Device.**

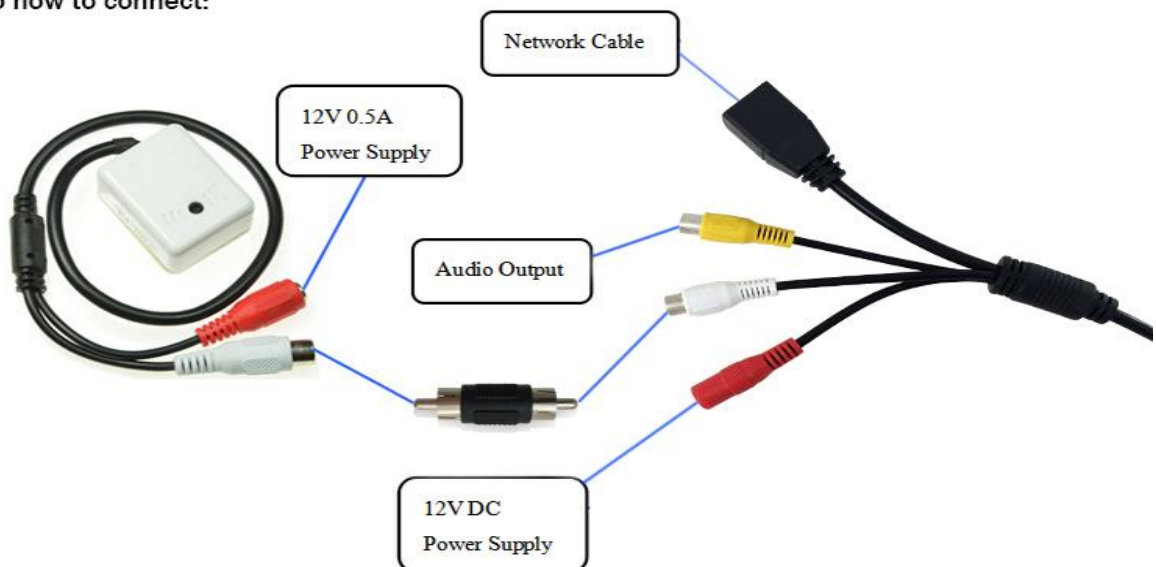
- 1.Manual Recording.**
- 2.Schedule (Time Base) Recording.**
- 3.Motion Detect Recording.**
- 4.Play Back & Data Backup to Pen Drive.**
- 5.Encode Storage Calculation.**



## 6. Audio System & Software.

1. Audio – Video data Play Back.
2. Data & Time Setting.
3. Color adjustment Setting.
4. Online connected machine check, disconnect, block.
5. Utilized function history check, backup, clear.
6. Privacy mask applying.
7. Information collecting for Hard disk working or error, HDD Capacity, free space, used space.

Audio how to connect:



## **7. Software (Hands-on-Practical).**

1. Hard disk check/setup.
2. Automatic system ON OFF setup.
3. Record overwrite days customize
4. Screen border area adjustment.
5. System configuration setting backup.
6. System factory reset.
7. Motion intrusion setup with beep & popup.
8. Line crossing beep trigger.
9. User account & permission add, edit, delete.
10. File Lock – Unlock

## **8. CCTV Networking.**

1. What is Remote CCTV Networking
2. How to Connect Single & Multi Camera Remote Diagram?
3. Need of CCTV Monitoring System
4. Advantage of CCTV Monitoring System
5. Remote Server Concepts
6. NVR Concepts
7. Networking Software's sample
8. Various Data Networks Comparison
9. Wireless Access point Concepts
10. Networking Related Glossary



## **9.IP CCTV Control.**

- 1.Advantages of IP Camera**
- 2.Installation of IP Camera**
- 3.How to Setup Your DVR For Remote View-Ref. Video**
- 4.IP Camera Configuration Remote Access-Ref. Video**
- 5.IP Camera Network Configuration Tutorial-Ref. Video**
- 6.CCTV IP Camera I Phone Application-Ref. Video**
- 7.I Phone Demo with IP Camera-Ref. Vide0**
- 8.Remote viewing CCTV systems on the I-Phone4-Ref.Vid**

## **10.Wi fi Camera Control.**

- 1.Installation of wi-fi camera**
- 2.Installation of Camera Software**
- 3.Networking of wi-fi camera Setup**
- 4.Connectivity of wi-fi camera**

### **Wireless WiFi Camera**



## **11.Use and live demo with Hardware.**

- 1.Introduce to all types of analog cameras  
(DOME, IR DOME, IR Bullet, Box, Mini Box, Varifocal, PTZ etc.)**
- 2.Camera Angle & Degree**

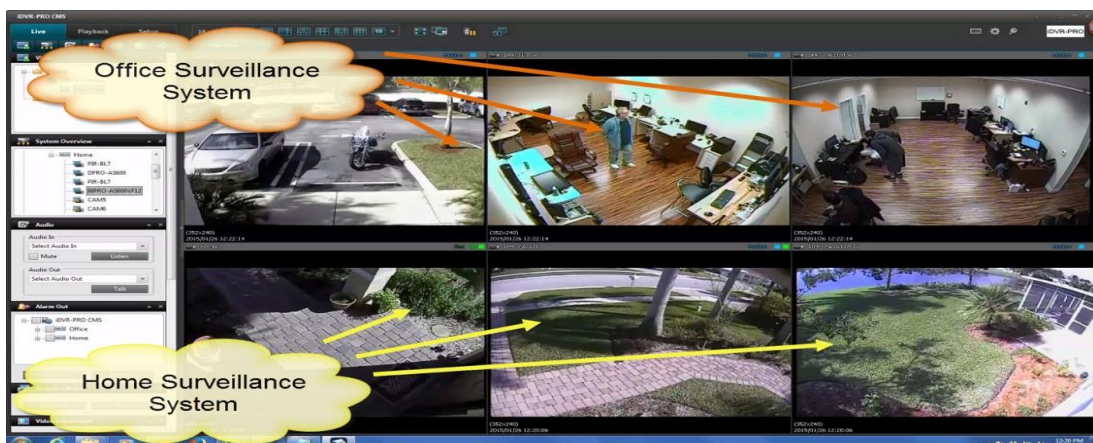


- 3.About Lens size, PCB, Sensor
- 4.Analog vs. IP surveillance TVL vs. Mega Pixel
- 5.Where & which camera required
- 6.Required power for cameras
- 7.SMPS selecting & installation
- 8.Surveillance accessories
- 9.Types of CCTV Cables
- 10.Types of Connectors & Its setup



## 12.Use and live demo with Software.

- 1.DVR intro. & Installation
- 2.Camera installation with DVR
- 3.Audio-Video Recording
- 4.MIC connecting with Camera
- 5.Video zooming
- 6H.264 vs. MPEG technology
- QCIF, CIF, D1, 960H, 720p, HDTV/ CVI
- 7.Data Encoding & Bitrates calculation



## **13.Installation & Integration.**

- 1.BNC for TV
- 2.VGA for Monitor
- 3.DATA SPLITTER With RT Cables With RG6 Cables
- 4.Cable Looping

## **14.PTZ (Pin-Tilt-Zoom) Camera Setup.**

- 1.With RS485 PTZ & Joystick Installation
- 2.PTZ Programming (preset & tour)
- 3.Use PTZ Camera.
- 4.Setup and Control PTZ.
- 5.Types Of PTZ.



## **15.LAN & WAN Networking.**

- 1.Setup LAN wired & wireless model.
- 2.Connecting Multiple DVR System on Mobile & Computer.
- 3.WAN Port Open -Close check.
- 4.DNS Networking with static IP.
- 5.DDNS Networking(Sub) Domain.
- 6.Cloud Networking



## 16. Networking Hardware Device .

- 1.Types of Cables.
- 2.Types of LAN WAN Hardware Tool.
- 3.Use Craping Tool.
- 4.RJ45 Cable Colure code.
- 5.Network Topologies.
- 6.Types Of Switch
- 7.Types Of Routers.
- 8.Types Of Networking.
- 9.Wi-Fi Router Configuration.
- 10.NVR & DVR Control use IP ID and on Mobile app.



## **17. BIO METRIC Attendance Machine & Software**

- 1. Introduce to all types of Bio-Matric Machines**
- 2. Bio-Matric Machine Installation**
- 3. Bio-Matric Door Access EM Lock Installation (single door access)**
- 4. Attendance Punching & Door opening through Pinger print**
- 5. Attendance Punching & Door opening through Proximity RFID**
- 6. Attendance Punching & Door opening through Password**
- 7. Attendance Punching & Door opening through Computer**
- 8. Mode to use a fingerprint only**
- 9. Mode to authenticate with a fingerprint and then enter PIN**
- 10. Mode to use a card only**
- 11. Mode to authenticate with a card and then authenticate with a fingerprint**
- 12. Mode to authenticate with a card and then enter PIN**
- 13. Mode to enter PIN and then authenticate with a fingerprint**
- 14. Case study with 5 cases practical (MS Access database module)**
- 15. Complete Attendance management software training**
- 16. All types of Attendance Report generating**
- 17. Report generating in XLS and .pdf**
- 18. DATA backup**
- 19. Networking -Finding & setting - Ping, Port, Device ID, IP, Gateway**
- 20. Bio-Matric Machine connecting in LAN through IP**
- 21. DATA Downloading through LAN**



## **17. Fire Alarm System**

- 1. Introduce to fire alarm panel Fire alarm**
- 2. System installation Planning and judgment.**
- 3. Required material or complete -fire alarm system installation**
- 4. Introduce to smoke detectors, heat detectors, manual call point, alarm siren, response indicators.**
- 5. Conceptual introduction for Special detectors (Gas, LPG, Beam, 4 wire base) installation with 24V output. By using Class B/B Class B style C cabling Vs Class B style B cabling.**
- 6. Practical Installation for Fire Alarm Panel.**
- 7. Hands on Practical Installation for Heat detector, smoke detector, Response indicators, Manual call point and alarm siren by using class B style C cabling.**
- 8. Practical on FIRE RELAY Contacts**
- 9. installation for Automatic door release when fire and integration with Biometric machine.**
- 10. NAC output mode setting - Temporal, steady, synchronized Zone Mode for Supervisory, Alarm, Walk test, Disable, Fire Supervisory mode.**
- 11. Setting Silence mode setting Manual/Automatic Change System Password, Inhibit time setup, Auto silence mode etc.**



## 18.Video Door Phone / Home Security System.

1. Practical Installation on Analog and Android base IP Video door phone
2. Introduce to 2-3 Colour VDP Introduce to Accessorize
3. Camera PCB types Camera Installation positions
4. Camera angles & degree Introduce to Colour Coding Of VDP Wireless installation
5. Knowledge for Analog VDP Installation
6. Power Connection Applying Voice Data Connection
7. Applying Video Data Connection
8. Applying Display Setting, Cabling concept
9. Extending Indoor & Outdoor Units concept

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## 18. Wireless Motion Detector & GSM Instructions Alarm (Addressable).

1. ANTI ROBBERY ALARM SYSTEM
2. Introduce to PIR Sensors
3. Introduce to GSM & PSTM Based panels
4. PIR Range & angles
5. PIR installation area & distance
6. Zone wise PIR Allocation
7. Wireless Zone setup for PIR
8. Wired hooter connecting
9. GSM and PSTM Panel expanat
10. Call / SMS Number setting
11. Call cycles setting
12. Delay call & Trigger time setting
13. ARM & DISARM modes
14. Wireless Remote adding
15. Wireless & wired Hooter Adding
16. Wireless PIR Adding
17. Wireless Remote resets
18. Wireless Hooter resets
19. Wireless PIR resets







Thanks And Regards

**Mr.Mahendra Balasaheb Barmukh.**

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