Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

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Participant Handbook

Sector
Electronics

Sub-Sector
Communication & Broadcasting

Occupation
After Sales Service

Reference ID - **ELE/Q8101, Version 1.0**
NSQF Level 4

DTH Set-top Box Installer and Service Technician

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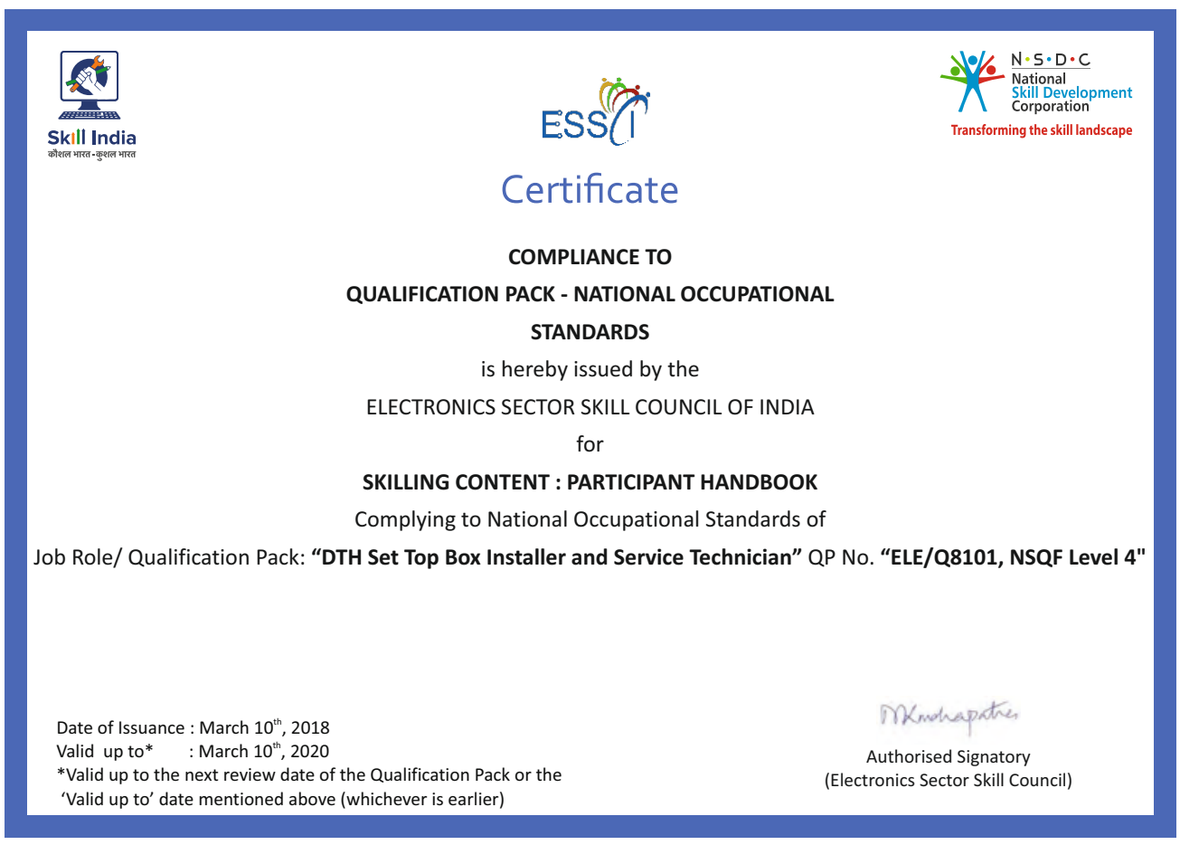
602-608, 6th Floor, Ansal Chambers-II. Bhikaji Cama Place, New Delhi-110066
Email: info@essc-india.org
Website: www.essc-india.org
Phone: +91-11-46035050

> Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission.

Shri Narendra Modi
Prime Minister of India



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Certificate

COMPLIANCE TO

QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

ELECTRONICS SECTOR SKILL COUNCIL OF INDIA

for

SKILLING CONTENT : PARTICIPANT HANDBOOK

Complying to National Occupational Standards of

Job Role/ Qualification Pack: **"DTH Set Top Box Installer and Service Technician"** QP No. **"ELE/Q8101, NSQF Level 4"**

Date of Issuance : March 10th, 2018
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*Valid up to the next review date of the Qualification Pack or the 'Valid up to' date mentioned above (whichever is earlier)

Authorised Signatory
(Electronics Sector Skill Council)

Acknowledgements

The need for having a standard curriculum for the Job Role based Qualification Packs under the National Skills Qualification Framework was felt necessary for achieving a uniform skill-based training manual in the form of a Participant Handbook.

I would like to take the opportunity to thank everyone who contributed in developing this Handbook for the QP DTH Set-top Box Installer and Service Technician.

The Handbook is the result of tireless pursuit to develop an effective tool for imparting the Skill Based training in the most effective manner.

I would like to thank the team of KontentEdge for their support to develop the content, the SME and the team at the ESSCI along with the industry partners for the tireless effort in bringing the Handbook in the current format.

CEO

Electronics Sector Skills Council of India

About this Book

This Participant Handbook is designed to enable training for the specific Qualification Pack (QP). Each National Occupational (NOS) is covered across Unit/s.
Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS.

- Understand the basics of DTH technology
- Know the DTH market, future and Government regulations
- Describe the DTH market, future and Government regulations
- List the different types of tools used for installing the dish
- Identify the correct methods of using the tools
- Maintain and handle tools properly
- Identify antenna assembly components used in DTH installation
- Explain the use of components in DTH installation
- Describe the consumables used in DTH setup
- Plan for installation of DTH on site
- Identify the potential mounting sites for antenna assembly
- Install antenna for DTH
- Identify the aspects of suing correct body language
- Explain the do and don'ts at work place

The symbols used in this book are described below.

Symbols Used


Key Learning Outcomes


Steps


Time


Tips


Notes


Unit Objectives


Practical


Activity

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1. DTH – The Technology

Unit 1.1 – Introduction to Basic DTH Technology

Unit 1.2 – Introduction to DTH Terminologies and Components

Unit 1.3 – DTH and Other Services

Unit 1.4 – Government Regulation, Market and Future of DTH

ELE/N8102

Key Learning Outcomes

At the end of this module, you will be able to:

1. Understand the basics of DTH technology
2. Know the DTH market, future and Government regulations
3. Describe the DTH market, future and Government regulations

UNIT 1.1: Introduction to Basic DTH Tech nology

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the requirements for schools to enable smart classes
2. Define the structure of smart classrooms
3. Identify the basic DTH technology and display products

1.1.1 DTH (Direct to Home)

Direct to home is a technology which provides satellite television broadcasting for direct reception broadcast for the customer premises. The DTH technology basically refers to the direct broadcasting satellite technology. This technology was develop ed to compete with the local cable TV service. It provides high quality satellite signal and many other value-added services (VAS) such as interactive channels, MOV (Movies on Demand) and television shopping directly to a user's home via a satellite link directly to customers premises.

The following figure shows the DTH technology network:

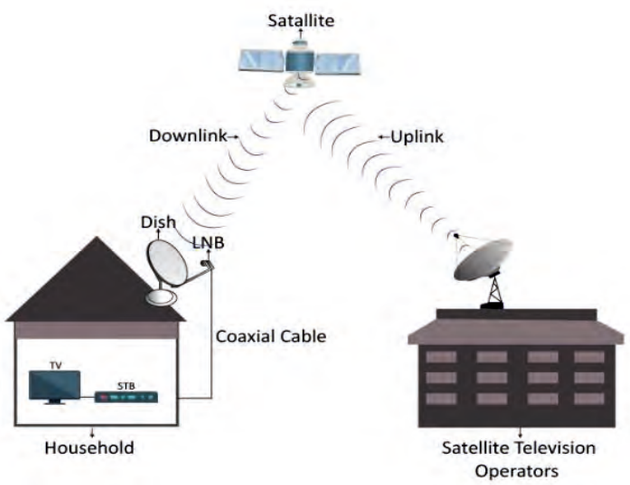


Fig. 1.1.1: Basic DTH network working

1.1.2 Components of DTH Network

A complete DTH network comprises of a programming source, broadcast centre, satellite, dish and receiver. The following figure shows the basic steps followed in a DTH set up:

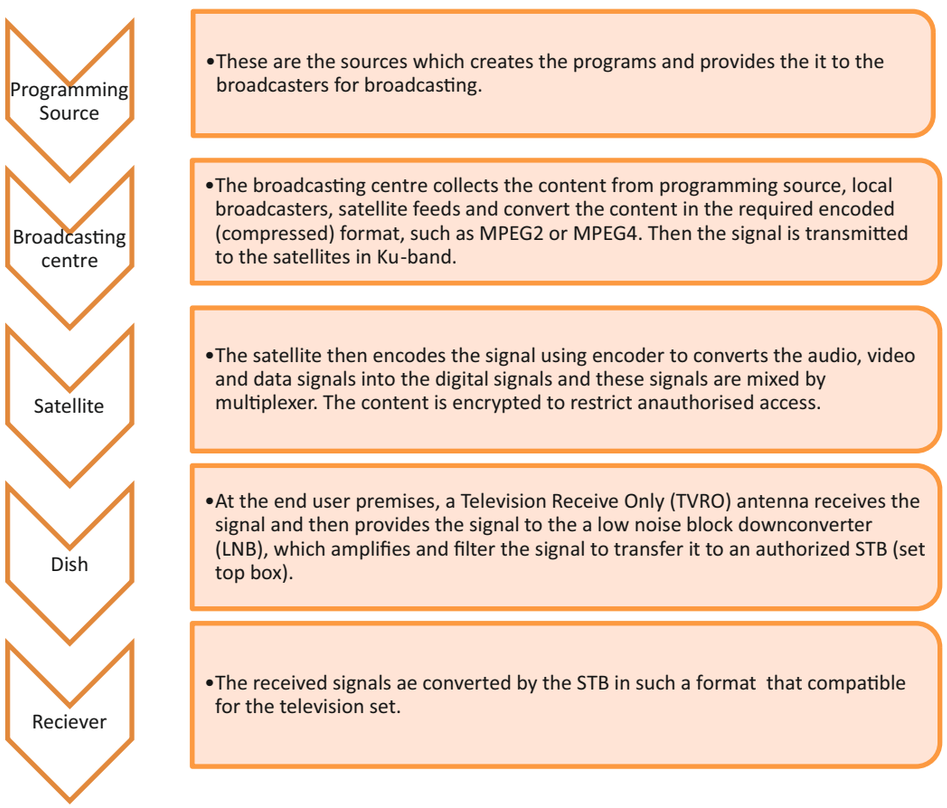


Fig. 1.1.2: Steps in DTH Technology set up

The following diagram shows the steps involved in DTH service working:

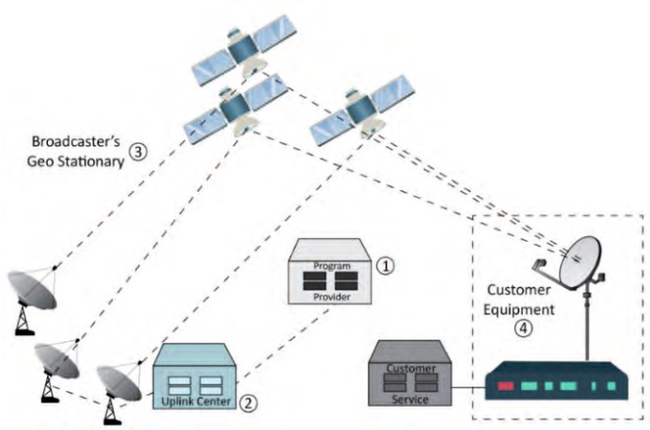


Fig. 1.1.3: Steps involved in DTH working

1.2.3 Working of DTH

The transmission of compressed programs from the broadcaster to the consumer passes through several stages. The following figure shows the steps involved in working of DTH service:

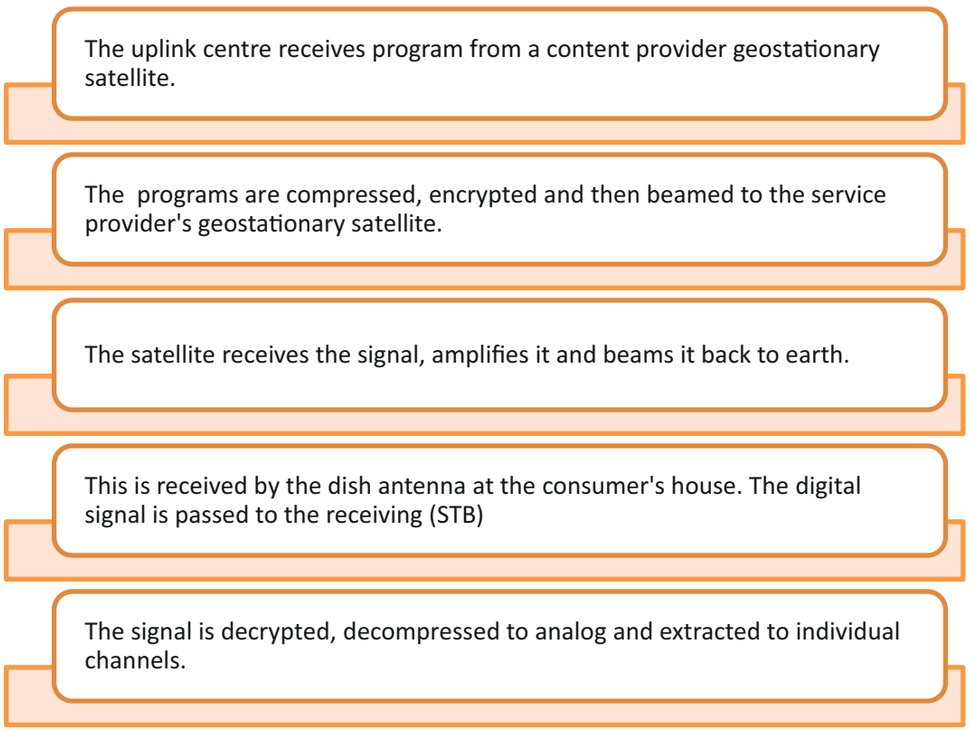


Fig. 1.1.4: Steps in working of a DTH service

The components required at the customer's site to receive the signals through satellite are:

- A dish antenna to catch signals from the satellite.
- A low noise block down (LNB) converter amplify the signals and filter out the noise.
- A set top box (STB) to convert digital signals to analogue signals.
- A co-axial cable to connect the STB to the TV.
- Other components such as connectors, viewing card, RG 6 cable and remote control.

Some prominent features of DTH:

- DTH bypasses the Cable operator and comes directly to our houses from broadcasters through satellites.
- It provides services to the remote areas where cable network is difficult to reach.
- It allows the users to pay only for the channels and services they have subscribed.
- It provides an advanced viewing control that allows the customer to check the current and scheduled programs for future.

- It provides high quality picture and sound to consumers and VAS (Value added services) like interactive games, internet access, movies on demand etc.
- It allows the broadcasters to restrict the piracy of the broadcasted content.
- It is a cost-effective measure as there is no mediator like cable service providers.
- As the DTH market has large number of competitor's consumers are free to choose service providers as per their convenience

1.1.4 History and Development of DTH

The following figure shows the major development years of DTH technology over a period time:

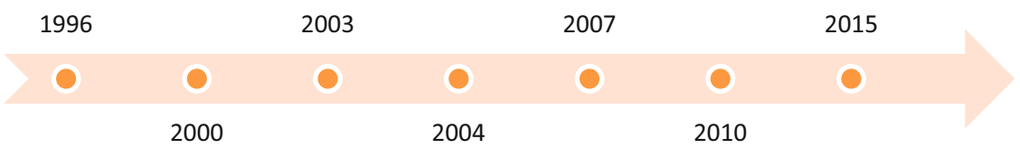


Fig. 1.1.5: DTH development years

The major development in the preceding years was:

- 1996 – DTH services was proposed in India. But next year Government banned the services as it was not approved because of the concern of the national security and negative cultural influence.
- 2000 – In November, Government of India allowed direct to home television broadcasting service with rules and regulations for the players to enter in the DTH market of India.
- 2003 – In October, first DTH service was launched by Dish TV in India.
- 2004 – In December, public broadcaster Prasar Bharati launched a free service known as DD Direct Plus (now DD Free Dish) which offers only free-to-air channels.
- 2007 – The Telecom Regulatory Authority of India (TRAI) issued the Telecommunication (Broadcasting and Cable Services) Interconnection (Fourth Amendment) Regulation 2007 which are the rules are broadcasters need to follow.
- 2010 – In the beginning of the year, Sun direct started offering India's first high definition service.
- 2015 – In January, Videocon d2h started providing India's first 4K ultra HD channels.

1.1.5 DTH in the Indian Scenario

As per the data on December 2016, there were a total of 97.05 million registered DTH subscribers, of which 62.65 million were active subscribers. This makes India the biggest market of DTH in the whole world as per the subscribers count.

In India there are over 167 million households which have TV sets. In which, 161 million households have access to cable TV.
(As per the research by TAM Universe update of 2015)
The Indian DTH industry is predicted to expand at Compounded Annual Growth Rate (CAGR) of 16% for 2016-2020.
(As per 'Indian DTH Market Outlook 2020' report)

Following are the names of a few DTH providers in Indian:

1. TATA Sky
2. BIG TV
3. Sun Direct DTH
4. Dish TV
5. Airtel DTH
6. Videocon DTH
7. Reliance

The following figure shows the market share of a few DTH providers in Indian market:

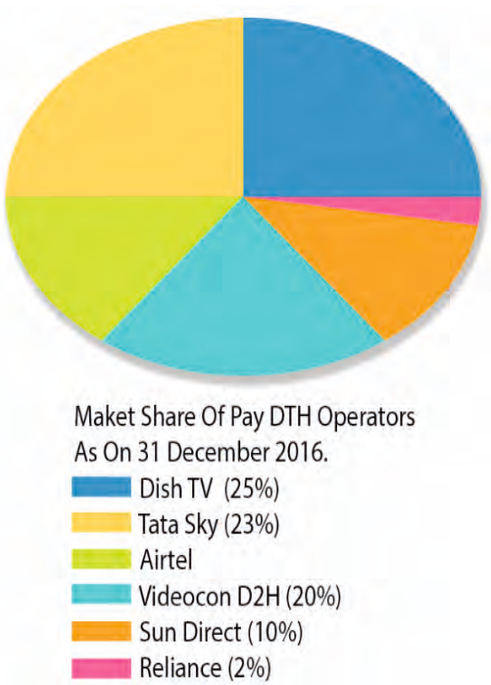


Fig. 1.1.6: Market share of DTH operators in India

In November 2016, Videocon d2h and Dish TV agreed on merger of their DTH operations. After this merger the entity known as DISH TV Videocon Limited, is the largest market player in Indian DTH market.

The Telecom Regulatory Authority of India (TRAI) was set up in February 1997 by an Act of Parliament. The authority regulates telecom services and tariffs in India and provides a fair and transparent environment that facilitates fair competition in the market.

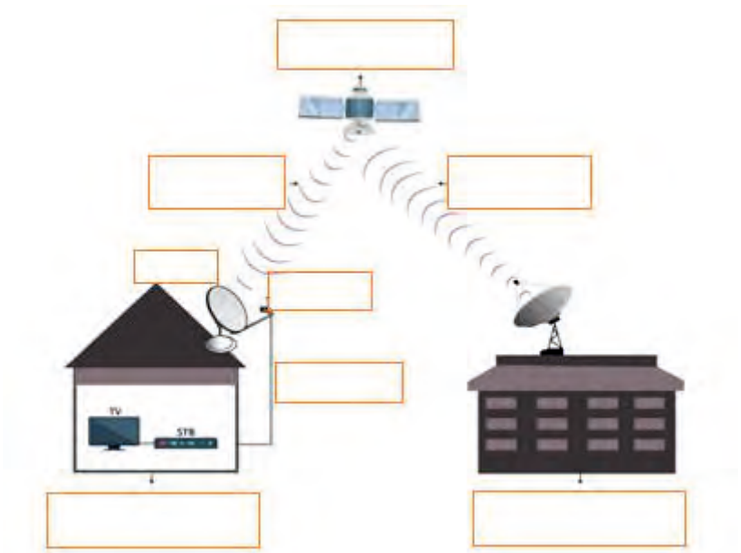
All DTH services in India are currently using the Moving Picture Experts Group (MPEG)-4 standard of signal compression as per the TRAI regulations.

1.1.6 DTH Future

- DTH will be the leading entertainment delivery technology owing to digitalization of content and wider audiences.
- Mobile DTH (In planes, SUVs, trains) and also on mobile phones is the future.
- Higher end interactive programme, wider range of content will dominate the scene and would be the key differentiator.
- 5K TV – It takes the resolution of 4K and adds extra width of 21:9 which makes it a wide screen display.
- TRAI will soon allow interoperability between DTH service providers and cable service providers allowing customers to switch from one operator to another. This will give more freedom to the customers to choose the service provider they like and not compelled to buy services from the one from whom they have purchased a set top box.

Activity

Look at the following image and label it.



UNIT 1.2: Introduction to DTH Terminologies and Components

Unit Objectives

At the end of this unit, you will be able to:

1. Describe the terminologies used in DTH technology.
2. Understand the components and consumables used in DTH set up.

1.2.1 DTH Terminologies

Some terms specific to DTH technology are shown in the following figure:

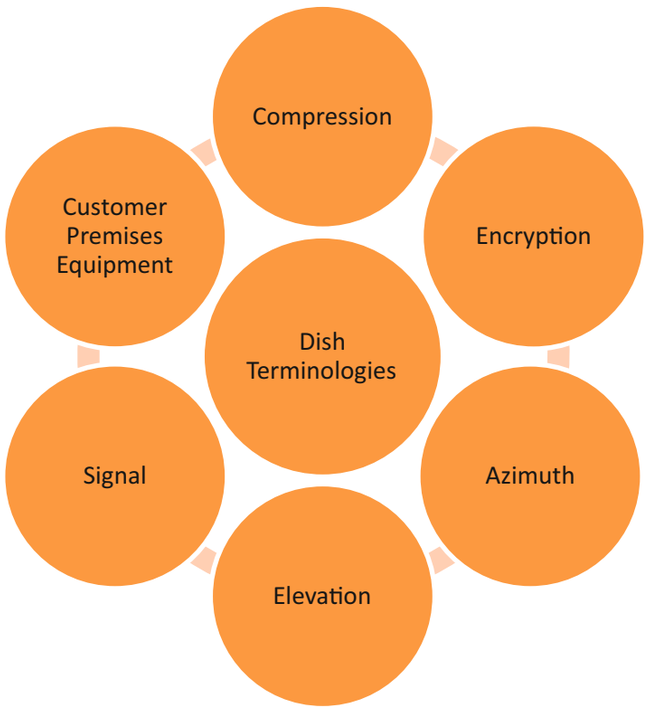


Fig. 1.2.1: DTH related terminologies

Compression

The size of programs made for television is huge and transmitting them is difficult and time consuming. Therefore, compression is used to make the size of these programs small.

A typical satellite has the capability to transmit about 200 channels with digital compression. Whereas it can transmit about 30 channels without digital compression. MPEG-1, MPEG-2 and MPEG-4 are a few of the compression technologies used to compress satellite signals.

The latest one among these is MPEG-4. A few features of MPEG-4 are:

- It is a collection method which defines the compression of audio and visual (AV) digital data.
- It includes many features of MPEG-1 and MPEG-2 and other related standards and further adds a few new features such as better compression, better picture quality and resolution.

Encryption

Programs that are transmitted can be illegally received and viewed by people. To prevent such a practice, content providers use encryption to code program signals. These signals can be decoded or decrypted by only those persons who have the correct decryption algorithm and security keys. This decrypting mechanism is built into the Set Top Box of the consumers. So, this makes unauthorized access difficult.

Azimuth

Azimuth angle is used to calculate the possible position of an object in the sky, with respect to a particular observation point. The observer is generally (but not necessarily) stationed on the earth's surface.

In case of DTH, Azimuth Angle is the angle at which the earth station satellite dish is fixed in comparison to the point of reference, measuring clockwise from true north. It is fixed to correctly point towards the satellite for receiving the best possible wireless signal from the orbiting geo stationary satellite. So, we can say that Azimuth specifies the rotation of the full antenna over a vertical axis. It is also called as a side to side angle. Generally the main mount bracket is unscrewed and whole disk is rotated all the way around in a circle of 360 degrees.

To rotate dish horizontally to track the satellite is called azimuth setting. It is measured with a Magnetic compass.

Elevation

The angle of elevation (el), also known as the altitude, of an observed object is determined by measuring the vertical angle between the consumer's dish antenna and the satellite. In other words, elevation specifies the angle between the pointing direction of the dish (directed towards the satellite) and the local horizontal plane and is an up-down angle.

Elevation setting is the method in which the dish is rotated dish vertically, so the satellite can be traced. It is measured with an Inclinometer.

The following figure shows the azimuth and elevation angles for DTH dish set up:

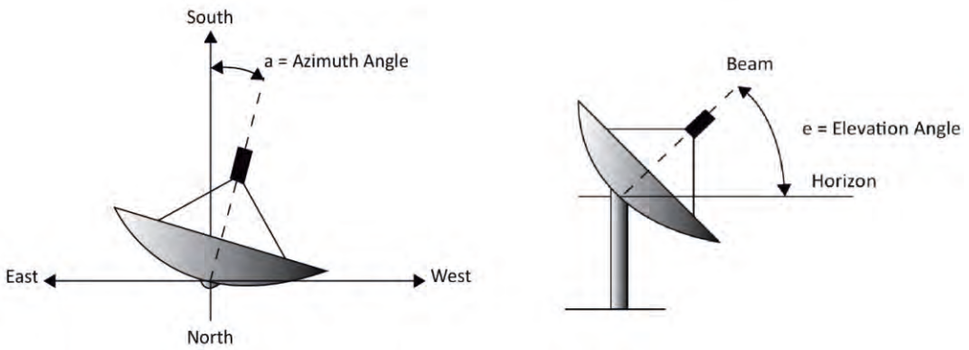


Fig. 1.2.2: Azimuth and elevation angles for DTH dish

Signal

A signal is communication system which is used to transfer information, data or any type of content from one place to another place.

The following figure shows types of signals:

Digital Signal	Analog Signal
•This type of signal is constructed from discreet set of waveforms to represent sequence of discreete signals.	•These are continuous signal in which the time variable of the signal is a representation of other time varying quantity.

Fig. 1.2.3: Difference between digital and analogue signal

Polarization

Polarization is the orientation of signals being received and broadcast by satellite transponders and antenna. In order to make maximum use of the transponder bandwidth, two different data of same frequency are transmitted over same transponder by simply transmitting them at different polarities i.e. one beam is vertically polarized while other is horizontally polarized. Polarity of a given beam is decided by the direction of the magnetic field developed by wave.

Antenna polarization is used to effectively broadcast and receive signals.

The following figure shows the types of polarization:

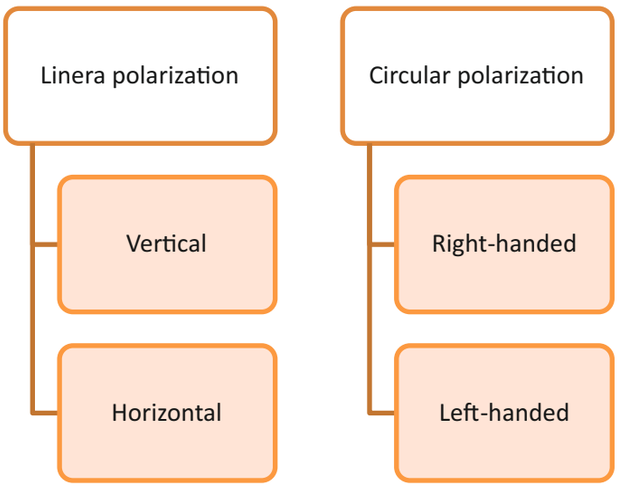


Fig. 1.2.4: Types of Polarization

To receive maximum signal clarity, the broadcasting antenna mounted o n a satellite and the receiving antenna mounted at the consumer home should be set for the same polarization.

Polarization of antenna can be done by mounting the m to be aligned with each other or adjusting the LNBF of the receiving antenna.

The following figure shows the horizontal and vertical polarised waves in x-y-z axis:

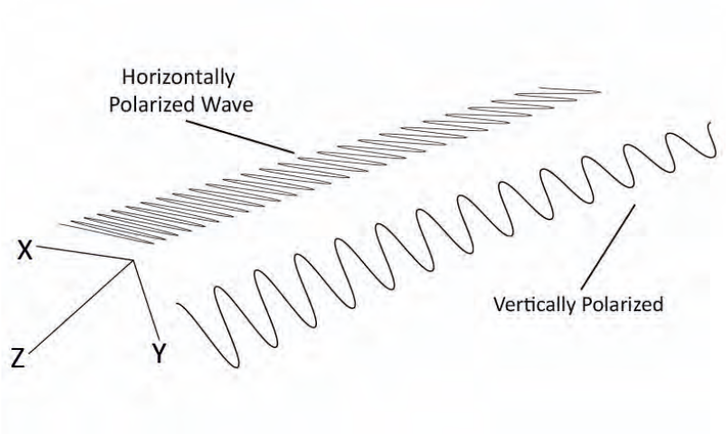


Fig. 1.2.5: Types of Polarization

Spectrum Allocation

A spectrum can be defined as the group of various types of EM radiations of different wavelengths. These are the radio frequencies over which all signals like mobile communication, GPS, DTH etc. travels.

The allocation of this spectrum is very important to make sure free operation of the spectrum service. Without affecting the quality of the service over the spectrum.

C-Band

C-band was the first frequency band allocated for commercial ground-to-satellite communications. It is that portion of the electromagnetic spectrum that lies between 400 MHz and 1000 MHz (4 to 8 GHz)

Ku Band

KU Band is the band of frequency ranging from 12 to 18 GHz. This is a very high band of frequency which is used by DTH to transmit signals. DTH uses KU Band to transmit signals from uplink centre to the geostationary satellite which is 36000 km away from the earth above the equator. As KU Band is a very high frequency band it can travel this distance with less deterioration.

Signal Level

Signal level refers to the strength of wireless signals received from a satellite. The signal level will be good if there is no obstruction in the path of its travel and the antenna is correctly pointing towards the satellite.

Satellite Foot Prints

The footprint of the communication satellites can be defined as that ground area which its transponders cover. It helps in determining the satellite dish diameter which is required to receive any transponder's signal. Each transponder (or a group of transponders) generally have a different map as each map is aimed to cover different areas of the ground.

The outer contours of the foot print match the geographical boundaries of the area intended to be covered. The power of signals reduces as we go farther from the centre of footprint.

Tracking

Tracking is the process of adjusting the position of the dish antenna in the satellite's direction so that it can face the satellite correctly. This is done to achieve optimum signal strength.

Up Linking

Up linking refers to the transmitting of wireless signals from an earth station to a satellite for re transmission.

Down Linking

Retransmission of wireless signals from a satellite to a ground station is called down linking.

LOS

A clear line-of-sight (LOS) should be there in between the satellite which is broadcasting the signals and the dish antenna at the consumer's home. Blockage of wireless signals coming from the satellite can occur if there is an obstruction such as a hill, a building and even trees. Blockage of signals due to an obstruction in line-of-sight leads to no reception.

The following figure shows the line-of-sight (LOS) for satellite signal:

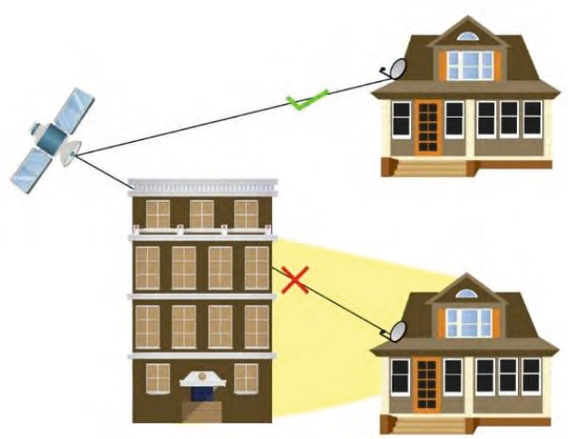


Fig. 1.2.6: Line of Sight for DTH satellite network

Rain Fade

When high frequency signals are transmitted through the atmosphere of earth (from uplink centre to the satellite & then back to earth) it incorporates some losses.

Since the wavelength of very high frequency is very small, the signal while passing through moist air during rainy season incurs heavy losses as compared to dry air. This heavy loss causes the set top box to get lower signals than in normal conditions and may even cause breakdown of signals altogether. This temporary loss of signals during heavy rain is called Rain Fade.

To reduce the rain fade affect, the Ku band system designers use slightly larger size of antennas than required during clear weather thus receiving little higher signals by a set top box than its minimum required level. In coastal regions 70 cm dish antennae is used. The following figure shows rain outage condition:

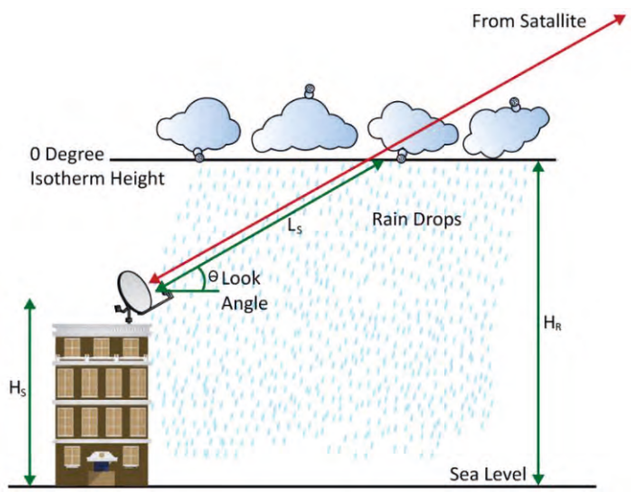


Fig. 1.2.7: DTH signal blockage due to rain outage

Sun Outage

A sun outage can be defined as an interruption or distortion in the signals of the geostationary satellites and is caused due to the interference from solar radiation. This effect because of the sun's radiation which overwhelm the satellite signal. Usually the sun outages occur in months of February, March, September and October, which is around the time of equinoxes. As the sun radiates strongly, it swamps the signals transmitted from the satellite which are in the form of microwave frequencies (C-band and Ku band). The sun outage effects include partial degradation, which is an increase in the rate of error, or total destruction of the signal. The following figure shows sun outage condition:

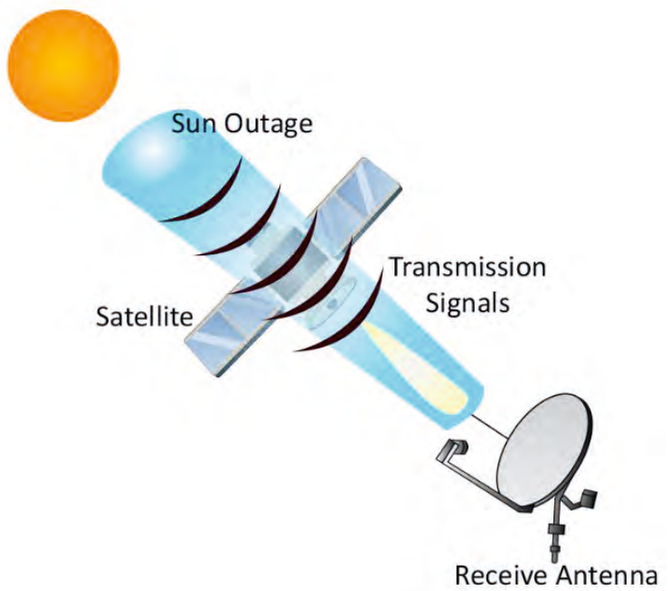


Fig. 1.2.8: DTH signal blockage due to sun outage

CPE

CPE refers to customer-premises equipment. It comprises of the following:

- Satellite Dish antenna which is used to receive signals from a geostationary satellite and reflect it to the LNBF.
- The Set top Box which receives signals from the LNBF and after decrypting, decompressing, separating the channels and converting the signals to analogue signals, it sends them to the television set.
- The viewing card which is inserted inside the set top box. It is used to authenticate the viewer's subscription and its validity.
- The Coaxial Cable which connects the set top box to the television to pass the analogue signals for viewing.
- Connectors which are used to link the cable running form the antenna to the set top box and from the set top box to the television.

- The remote control which is used to perform the set top box functions from a distance.
- AAA batteries used in the remote control.
- Audio/Video cable used to connect set top box to the television.
- The LNBF which sends the signals via a cable to the set top box.

The following are the images of some customer premises equipment:

Dish

STB

Coaxial cable

LNBF arm

Fig. 1.2.9: Customer premises equipment

Satellite

A natural or manmade object that revolves around the planet is called satellite. The following is a figure of satellite:

Fig. 1.2.10: Satellite

Satellites can be of the following types:

- Sun-Synchronous Sat – These satellites are in polar orbits. Meteorological satellites are generally positioned in a sun-synchronous or heliosynchronous orbit. Orbits are composed so that the satellite's orientation is fixed with respect to the Sun consistently, enabling exceptionally precise climate forecasts to be made. Most of the meteorological satellites orbits about 15 to 16 times per day around the Earth.

- Geosynchronous – Earth-synchronous or geosynchronous satellites are positioned into orbit so that their period of rotation precisely coordinated the Earth's rotation.
- The satellites are positioned in the highly elliptical orbits which empower them to seem to float over one point on the Earth for a large portion of the day. In 24 hours they move over the Earth in a figure of 8 patterns focused on a settled longitude.
- Geostationary – Most of the communications satellites are geostationary satellites. They take twenty-four hours to finish a rotation. They are situated specifically over the equator and their path follows Earth's equatorial plane. Thus the geostationary satellites do not move during the day in North or South and are permanently settled over one point on the equator of the Earth.

The signals are received by the Geo stationary satellites from the uplink centre and they rebroadcast them to the ground.

The content is uplinked to satellites that are orbiting the Earth in a geostationary orbit:

- 36,000 km above earth
- 0^0 – above the equator
- 24 hr orbit – appears stationary

1.2.2 Satellite Components

Satellites are artificial man-made components placed in the orbit of Earth for the purpose of wireless observation and communication. The following image shows components of a satellite:

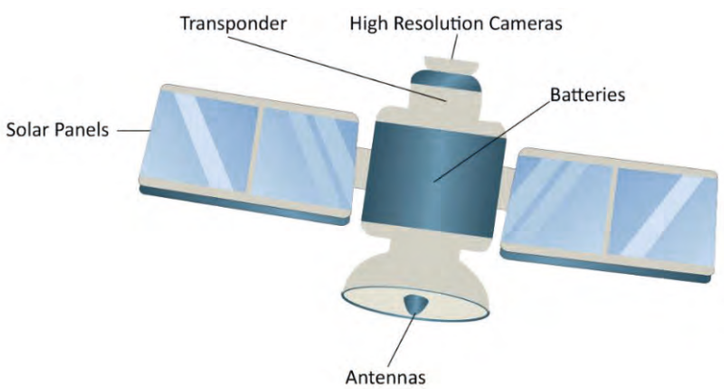


Fig. 1.2.11: Satellite and its parts

Transponders

These are the most important parts of satellite. The main functions of transponders are to amplify the received signals from ground station, rectify the distorted data, down convert them to down link frequency and then beam them back to the ground. The total bandwidth of a single transponder is 40 MHz containing 36 MHz of actual effective bandwidth and 2 MHz of guard band on both sides for isolation from adjacent transponders.

Solar Panels

These components are useful in providing power to the various electronic components of satellite by trapping sunlight.

Batteries

These are used to store power for backup during phases when satellite is not receiving sunlight.

Antennas

These are the high-quality antennas used to receive uplink frequencies from ground station & then transmit back the down link frequencies to the ground.

High Resolution Cameras

These are used in surveillance satellites and spy satellites and can monitor even small objects on ground from a height of thousands of km.

1.2.3 Dish and Set Top Box Components

Dish: The dish antenna is located at the consumer's home. It receives signals directly from a geo stationary satellite.

The LNBF (Low Noise Block down Converter Feed): The incoming satellite signals are guided by the dish to a rectangular chamber which is mounted at the front of the low-noise block down converter (LNB). This box has a pickup probe, which has a wavelength that resonates with the incoming microwave frequencies and thus amplifies the signal. It also generates thermal noise internally. The internal noise contributio n of the LNB is amplified along with the incoming signal and passed on to succeeding amplifier stages. The following figure shows the parts of a dish antenna:

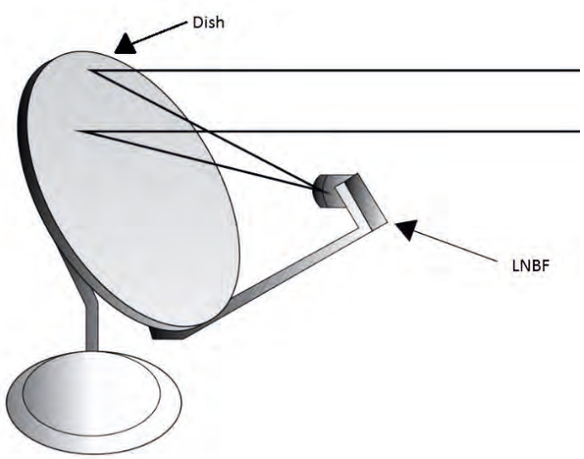


Fig. 1.2.12: Parts of DTH antenna

The set top-box acts as the receiver which is kept with the TV at the customer location and houses the viewing card. It decrypts and decompresses the signals and converts them into audio and visual format for TV output. The following is the image of a set top box:

Fig. 1.2.13: Set top box

Remote control: The remote control is used to operate all the settings of the set top box such as channel selection, tuning, and other settings.

Connectors: Connectors are used to connect the cables securely with the device.

Viewing card: Viewing card is installed in the STB and is used to store customer specific tariffs and validity details.

Coaxial cable: Coaxial cable is used to transmit the signal received at the LNBF to the set top box.

Subscriber Management System (SMS): It is a card installed in the STB is used to store customer specific information's like customers information, tariffs used by customer and validity details.

Activity

Name the three types of satellites:

1. _____
2. _____
3. _____

Name the components of a satellite:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

UNIT 1.3: DTH Vs. Other Services

Unit Objectives

At the end of this unit, you will be able to:

1. Identify other cable services
2. Describe the difference between DTH service, Cable service and IPTV

1.3.1 DTH Vs. Other Services

Cable Television

Cabled TV is an arrangement of giving TV administrations to purchasers by means of radio frequency signals transmitted to TVs receivers through coaxial cables inste ad of the over-the-air technique which is utilized as a part of conventional TV broadcasting (by means of radio waves) in which a TV reception apparatus is required.

A channel provider begins the process by transmitting the program in the form of satellit e signals which are received by cable operator's receiving station. The cable companies take different feed of different satellite signals and logically divide it. This signal then propagates down the cable to subscriber's house via large cable network.

The problem is, the signals are not strong enough to go miles on. To overcome this, cable companies put amplifiers in the cable route to boost the signal strength. There can be number of amplifiers in the route depending upon the location of the viewer from the cable operator's control room. This amplifies the signals however lower downs the picture quality.

The following is the table lists the differences between DTH and cable.

DTH	Cable
Programs are relayed in digital format from source to final destination to enable high definition audio and video.	In the last leg, from the cable operator to the customer, the signals are sent in analogy form. Due to this, there is loss in reception quality.
Customers can select the channels that they want to view.	Different viewers cannot subscribe to different packages.
Customers have individual antennas.	Customers are dependent on cable operators/multi system operators (MSOs). Even failure of electricity at the cable operator's end will prevent relay of programs to customers.

DTH	Cable
The system is wireless, except the connection between the antenna and the STB and the STB and the television. A fault in these cables affects only one television.	The cable operator's network rests on cables. For example, if the cable is damaged at any point on the network, customers on the cable route will not receive signal.
Customer gets value added services such as Pay per view, and interactive games.	No value-added services are available.
Geographical mobility is possible.	Geographical mobility is not possible.

Fig. 1.3.1: Differences between DTH and cable

Internet Protocol Television (IPTV) is a recent technology than DTH. It provides more interactive viewing but as per the current Indian scenario, it is not available for majority of the population due to lack of infrastructure as it depends on optical fibre cables network (Broadband). The following is the table lists the differences between DTH and IPTV:

DTH	IPTV
All programs are available for a consumer to choose from.	Only selected programming and on-demand content are delivered to the consumer.
Based on digital signals from source to final destination, it provides high quality of audio and video.	IPTV needs a continuous data transmission and utilizes the Internet Protocol. Thus, it is sensitive to data loss and delays if the IPTV connection is not fast enough.
DTH has no physical restrictions such as broadband and cables.	Requires a broadband connection.
Use of satellite enables DTH to reach many customers very quickly.	Not able to reach many customers as it requires a broadband connection which is present in limited areas in India.

Fig. 1.3.2: Differences between DTH and IPTV

CAS (Cable) is a conditional access system just like DTH but the service is provided by th e cable operators. They also provide a STB and give a good picture quality as DTH. But, a middle man is present between the complete networks as the satellite signals received by the cable operator which then transmit the signal over cable network.

The following is the table lists the differences between DTH and CAS:

DTH	CAS (Cable)
A set top box (STB) is required to view any channel. This enables viewers to receive the channels they explicitly asked for and receive high quality video and sound.	In the Conditional Access System, STB is required to view Pay Per view channels but is available in limited areas of four metros.
It is non-proprietary, hence the subscriber can make use of the same equipment, such as the set top box, remote, antenna etc., when moving from one place to another with only a change of the viewing card.	It has less mobility due to the set-top box provided by an operator in one locality might not necessarily work in another.
Value added services available.	No value-added services available.
24*7 customer service is available.	Lack of good customer service, as the service is completely controlled by individual private cable distributors.

Fig. 1.3.3: Difference between DTH and CAS

Activity

Read the statements to identify the descriptions of DTH, cable, CAS and IPTV. Write DTH, cable, CAS or IPTV in the blank space provided.

1. All programs are available for a consumer to choose from. _____
2. Different viewers cannot subscribe to different packages . _____
3. Requires a broadband connection. _____
4. No value-added services available. _____
5. 24*7 customer service is available. _____
6. No physical restrictions such as broadband and cables. _____

UNIT 1.4: Government Regulation, Market and Future of DTH

Unit Objectives

At the end of this unit, you will be able to:

1. Explain the DTH Government Regulation
2. Identify the DTH market trends and its future

1.4.1 Government Regulations

Unauthorized use of DTH signals at the time of distribution or sharing the same with other users is a big issue for which government has to set up a separate authority to handle such issues to regulate DTH industry.

To establish regulations for the telecom services and tariffs in India, Telecom Regulatory Authority of India (TRAI) was established in 1997. From the year 2004, TRAI was given the powers to regulate broadcasting and cable television sector in India.

After the permission of DTH services in India the DTH regulations are taken care by the TRAI.

Basic roles of TRAI are

- Issues related to tariff
- Interconnection agreements between Content providers and Broadcasters
- Quality of service issues for consumers
- Prevention of Piracy

According to the new policy of TRAI reported in the year 2000, all the DTH administrators need to set up their earth stations in India inside 12 months of time in the wake of accepting a valid license. The DTH licenses were valued around $2.14 million with a validity period of 10 years. To increase the transparency and accessibility in television broadcasting TRAI roll out the CAS. A regulatory framework with minimum entry barrier was set up by TRAI for:

- Consumer friendly tariff schemes for channels.
- Affordable tariff distribution network for supply of set top boxes.
- Detailed framework to establish a standard for quality of service.
- Workable formulation to overcome the interconnection issues.

The TRAI has permitted 100% FDI (Foreign Direct Investment) in the DTH industry from the year 2015, with 49% of the investment through direct routes and higher investments after government approval. The company providing the service should be headed by an Indian citizen.

1.4.2 Piracy of Content

Unauthorised access of broadcasting content by any means and sharing that content to users without following any government regulation or permission in a television broadcasting is piracy in broadcasting.

- Piracy is a big threat to the entertainment industry
- Genuine operators pay heavily for copyright material but those pirating it get it for free or at a very low price
- Copyright owners loose income as their content get used for free

Where and how is piracy happening?

Today there are various types of piracy that occur in the DTH system.
A subscriber of one service provider innovates to view the signals of the other service provider also, without paying for the same
A subscriber acquires a SIM card from the grey market and views other unauthorized satellite signals from satellites with foot prints in the country.

Measures taken to restrict piracy

There are several ways to resolve the problem. Some measures that have been adopted are:

- **Legislation:** A law is introduced to make piracy of broadcasted content for television viewing a legal offense. This requires the intervention of the Government. A person is involved in accessing or using the encrypted satellite by using unauthorised methods has to be caught and convicted. Most countries have enforced piracy legislation .

- **Encryption:** Encryption is also called coding. It refers to coding the signals in such a way that anyone without the correct decryption algorithm will not be able to use the signals. This is one of the most popular ways to secure content. The service provider has complete control on how to encrypt and decrypt. The same principle is followed where cable operators need to implement CAS.

Activity

State true and false.

1. Up linking refers to the transmitting of wireless signals from an earth station to a satellite for re transmission. _____
2. A sun outage is an interruption or distortion of geostationary satellite signals caused by interference from solar radiation. _____
3. Connectors which are used to link the cable running form the antenna to the set top box and from the set top box to the modem. _____
4. Meteorological satellites are never placed in a sun-synchronous or Heli synchronous orbit. _____
5. Geostationary satellites take 42 hours to complete a rotation. _____

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2. Introduction of Tools and Basic Electronics for DTH Role

Unit 2.1 – Tools for DTH Role

Unit 2.2 – Identify the Use of Tools and Equipment

Unit 2.3 – Basic Electronics in DTH Set Up

ELE/N8105

Key Learning Outcomes 

At the end of this module, you will be able to:

1. List the different types of tools used for installing the dish
2. Identify the correct methods of using the tools
3. Maintain and handle tools properly
4. Identify the safety methods to be followed while handling the tools

UNIT 2.1: Tools for DTH Role

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the types of tools used for installation
2. Identify the equipment used in DTH installation

2.1.1 List of Tools

Tools are the non-consumable items that can be used in installing or servicing the DTH set up, such as installing dish, and making cable connections. Operations such as tightening of bolts, stripping wires and measuring angles and length can be easily done with the help of specific tools.

Hand tools are the tools which are operated easily to perform tasks by using power and grip of hand. Some example of tools are screw driver, hammer, measuring tape, wrenches and so on.

Tools are essentials for a DTH technician as it helps the technician to complete the task of installing DTH easily with less efforts.

Tools used by DTH technician based upon their function are listed in the following table:

Hammering and Braking	Cutting	Drilling	Rotating	Pulling	Cleaning and extra equipment	Testing/ measuring
Heavy duty hammer	Knife/ cutter	Drill machine with drill bits	Screw driver set Spanner Wrench	Pliers Compression tool Crimping tool	Blow pump Component box	Tester Measuring tape Spirit level meter Sat-meter/ Sat-finder

Fig. 2.1.1: Tools used by DTH technician

The following is an image of basic tools used in DTH installation:

Fig. 2.1.2: Tools used in DTH installation

Activity

Look at the picture. Pick any 6 tools and write the following:

Name of the tool	Function/Usage of the tool
1.	
2.	
3.	
4.	
5.	
6.	

UNIT 2.2: Identify the Use of Tools and Equipment's

Unit Objectives

At the end of this unit, you will be able to:

1. Identify different types of tools
2. Safety measures to be taken while handling tools

2.2.1 Introduction to Basic Tools

The following tools are used for basic installation and servicing:

1. **Detachable small handle screwdriver**: A screw driver which can be used from either ends. One end has a '+' shape for '+' shaped screws and other end for '-' shaped screws.
2. **Detachable Long handle Screw Driver:** A similar kind of screw driver with long stem. This also can be used from either ends. One end has a plus '+' shape for '+' shaped screws and other end for minus'-' shaped screws.
3. **Slim Line Slot Head Screw driver:** Used where we cannot reach with our hands or even fingers. It has a long and thin stem and has a minus'-' shape.
4. **Round screw driver:** Used to screw and un-screw the minus '-', plus '+', star '*', hexagonal or any other type of screws. It has a magnetic front socket which can hold bits of various shapes.
5. **Bit Pad:** A pad with 8-10 bits of varied shapes to use with round screw driver.
6. **Extension Bit/Rod:** A component that is attached to the front of the round screw driver to increase its length. Once attached, it increases the reach of the screw driver by an inch to 3-4 inches. The following is an image of a screw driver set:

Fig. 2.2.1: Screw driver set with bits

7. **Tester**: It is used to check the presence of electric current in various sockets and wires during installation process. The following is an image of a tester:

Fig. 2.2.2: Tester

8. **Double Ended Round Spanner:** A round spanner that can be used at either end. Each end has a different size. Generally a set of spanner has a combination of sizes 10-11mm, 12-13 mm or 13-14mm.

9. **Simple Spanner:** A normal spanner (wrench) which can be used at either ends. These are also two in numbers. One is the combination of 10-11mm and other being the combination of 12-13mm and 14-15mm. The following is an image of spanner set:

Fig. 2.2.3: Spanner with wrench heads

Note: The sizes mentioned here, i.e. 10, 11, 12, 13 are the measurements in millimetre. We use the 10 size end of a spanner for the nut/bolt head of 10 mm in diameter. Same is for 11, 12 and 13 as well.

10. **Adjustable Wrench:** It is a spanner that can be adjusted as per the head size of a nut/bolt. It is helpful in situations where the installation engineer encounters a head which is either bigger or smaller than the limited sized spanners they otherwise carry along.

11. **Measuring Tape:** It is a self-retracting pocket tape measure which is used to measure wall thickness and other measurements while carrying out installation. The following is an image of a measuring tape:

Fig. 2.2.4: Measuring tape

12. **Spirit Level Meter:** It is an ideal tool for precise determination of horizontals, inclines and angles of surface. The following is an image of a spirit level meter:

Fig. 2.2.5: Spirit level meter

13. **Heavy Duty Hammer:** It is used for driving nails, fitting parts, and breaking up objects. It has a handle and a head, with most of the weight in the head. One side of the head has a little slit that is used to pull out nails from walls or wooden brackets. The head of the hammer can be used as a reliable guide for minimum bend radius of coaxial cable while clipping it to the wall. The following is an image of a heavy duty hammer:

Fig. 2.2.6: Heavy duty hammer

14. **Pliers:** Pliers are hand tools, designed primarily for gripping objects by using leverage. Three types of pliers are used by installation engineers:

    a. **Combination pliers:** These are used for gripping small objects, to cut and bend wire and cable and to hammer other small tools such as a chisel or screwdriver and small nails. These pliers have a gripping joint at their snub nose, and cutting edge in their craw. They also have insulated handle grips that reduce (but do not eliminate) the risk of electric shock from contact with live wires.

    b. **Side Cutter or Heavy Duty Cutter:** These are used to cut wires and nails.

    c. **Wire Stripper / Cutter:** Used for stripping wires, removing insulation on electrical wire while leaving the wire intact. It is an adjustable plier which can be adjusted using a screw driver to enable its usage on a thicker wire as well. The following is an image of pliers and cutters:

Fig. 2.2.7: Cutters and pliers

15. **Compression Tool**: This is used to compress the connector on to the wire end. The connector is then connected to the LNBF of Antenna or to STB jack.

16. **Cable Preparation Tool:** It is used to cut the cable and to prepare it for use during installation. The following is an image of cable crimping tools:

Fig. 2.2.8: Cable crimping tools

Note: Compression and Crimping tools are generally used together. Crimp tool is used to cut the wire and the compression tool is to fix the connector to an end of wire. Never try to cut the outer sheet of coaxial cable manually as it may cause problems later. The following is an image of a blow pump:

Fig. 2.2.9: Blow pump

17. **Component Box:** A small box to keep small spare parts like screws, nuts, bolts, p-clips etc.

18. **Blow Pump**: Tool used to blow dust particles from the hole made using the drill machine for installing clamp on the wall.

    Note: Never try to blow dust through mouth as particles might fall in your eyes.

19. **Drill Machine:** It is used to create holes and through-holes in concrete and masonry (max. diameter 20 mm). It is also used for drilling metal sheets, wood, drywall and driving screws. It operates at 600 W. It can be operated in two modes, normal as well as hammer. The normal motion is a rotatory motion whereas hammer motion is combination of rotatory and a hammer motion. There are separate bits for both the modes. The following is an image of a drill and drill bits:

Fig. 2.2.10: Drill machine and drill bits

20. **Bits:** The way drill machine has two modes, normal and hammer, bits are also of two types. One set of bit is used for normal drilling whereas the other for hammer drilling. Hammer drilling bit has got a different shape and has grooves for better grip. Hammer Bit is generally used for concrete and comes in varied sizes such as 6mm, 8mm, 10mm, 12mm and of 47mm length.

21. **Sat-meter/Sat-finder**: It is a device that uniquely identifies the satellite and calibrates with it to provide appropriate signal strength. The following is an image of a sat-meter/sat-finder:

Fig. 2.2.11: Sat-meter/Sat-finder

22. **Service Cable:** It is a 2-3 meter coaxial cable which is used for setting up the antenna's position in alignment with satellite. It is connected to the LNB connector and to the sat-meter to check signal strength while aligning antenna.

23. **Inclinometer:** An instrument used by surveyors in order to measure the angle of inclination or elevation. It is used to measure the angle at which the dish antenna is aligned to the satellite. The following is an image of an inclinometer:

Fig. 2.2.12: Inclinometer

24. **Digital Multimetre**: It is an electronic device which is capable of taking various electronic measures such as current, voltage or resistance. The basic measurements that are normally made include voltage, current (both AC and DC) as well as resistance. Advanced multimeters have a variety of other functions such as measurement of frequency (not up to a high level of precision), capacitance and temperature. The following is an image of a multimeter:

Fig. 2.2.12: Digital multimeter

25. **AC line Detector:** It is a device that is used to detect live wiring under the surface of a wall or roof. It is required at the installation site so that the drilling ta sk does not damage the internal wiring.
26. **Torch:** A battery operated source of light. It is kept in the tool kit to use in case the light fades or is not appropriate during the time of installation.

2.2.2 Safety while Handling Tools

The tools selected for a particular set of job should be specifically suitable for the job. The tool should have proper handle grip so as to avoid slipping of the tool while working. The tools should be used only for the purpose they are made for and not any other purpose.

The tools should be used under the safe working limits as per the design specification of the tool.

A technician should always wear personal protective wear such as safety gloves, safety helmet, safety goggles, safety shoes, ear protecting plugs and safety mask . The following are the images of personal protective equipment's:

Fig. 2.2.1: Personal protective equipment (PPE)

The tools should be carried in proper toolbox in managed and organised way. The tools should be kept at the secure place to avoid any unaut horised access and accident from the tools. Before working, check the workpiece to prevent any damage to the tool to be used on the workpiece.

While working at heights, tools should be tied or put in safe place to avoid any slipping and dropping of the tool. The tools should be operated in a correct position with proper strength for holding and operating the tool effectively. While using tools, correct procedure should be followed as per the manufacturer's instruction to operate the tool. While using sharp edged tools, ensure that the direction of movement of the tool should be away from the body. After completion of work put the tools in the appropriate place securely.

2.2.3 Maintenance and Housekeeping of Tools

As the tools are essential for a service technician regular maintenance and check needs to be done to maintain the tools in good condition. Using or working with a Damaged, broken or not suitable tool is hazardous.

To keep the tools in good conditions following steps should be checked:

- Get the tools from the store as per the requirement and return the tools in good condition after completion of the work.
- A regular routine check of the tools should be done to examine the conditions of the tools.
- Get the damaged and worn out tools fixed else get the tool replaced.
- Before and after completion of the work clean the tools properly.
- Edges of the sharp edged tools should be maintained sharp.
- The tools should be kept in the store department in ordered way in proper toolboxes.
- Sharp tools should be kept with protective guard over the sharp edges.
- Broken tools should be discarded securely.
- Regular examination, repair and maintenance of the tools should be carried out only by a competent person.
- Report about any issue related to damage or faulty tool/equipment to the store supervisor or senior.

2.2.4 Safety while Working

While working on a site make sure you follow the safety regulations to avoid any accident. Safety is the primary concern as per the company's policy and standards.

Safety should be followed:

- While handling tools/equipment's
- Climbing an elevated surface or using ladders

The given safety points should be considered while working:

- Overloading – While using tools/equipment's make sure that they are not overloaded or operated beyond working limits. The ladder or structure over which you need to work should not be overloaded as well.
- Overreach – Do not try to reach beyond reach while working on ladder or elevated surface. Keep safety line tied with safety belt while working.
- Resting tools – Avoid resting or hanging of tools over an elevated surface.
- Carrying tools – Always carry tools safely or use tool belts for carrying tools.
- Stability – Always make sure making stable point of contact on ground and especially on an elevated surface like roof or using a ladder. Make sure making three point of contact rule for stable position before starting the work.
- Standardised equipment's – Make sure you are using standardised equipment's like tools, ladders and safety equipment's.

- Maintenance – Always maintain your tools equipment clean and in good condition before using.

First Aid

While working on the site and handling tools and equipment's a person might suffer some injury. So, to handle such situation the technician should carry a first aid kit which can hel p provide the first aid necessary. The first aid box may contain:

- Instructions to provide first aid.
- Sterile and antiseptic liquids.
- Bandages of appropriate sizes and cotton.
- Scissors, clippers and tweezers.
- Cold pads.
- Disposable gloves.

The technician should also have a basic knowledge to provide first aid. Also, in case of any accident contact emergency services as soon as possible via communication methods.

Activity 

List 5 points that can help a technician keep his/her tools in a good working condition:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Practical

Perform cleaning, maintenance and placement of the given hand tools:

- Hammer,
- Plier,
- Crimpers multimeter,
- Screw driver and
- Drill machine.

Use the items such as dry cloths, cleaning agent, sand paper, and tool box.

UNIT 2.3: Electronics in DTH Set Up

Unit Objectives

At the end of this unit, you will be able to:

1. Define electronics
2. Explain the basics concepts of electronics
3. Identify electronic circuits and their components
4. Explain the fundamentals of electricity

2.3.1 Introduction to Electronics

Electronics is the branch of science which involves the study of flow and control of electrons (electricity) and their behaviour and effects. This branch deals with electrical circuits involving active electronic components such as vacuum tubes, transistors, diodes and integrated circuits and passive electronic components such as resistors, capacitors and inductors, along with interconnection technologies.

2.3.2 Electronic Circuits and their Components

The circuit of a STB is made up of various basic electronic components. These components are the fundamental building blocks of the electrical/electronic circuits. For a field technician, it is necessary to identify these components correctly.

The electronic components are embedded on PCBs. A PCB acts as a base for the components that are mounted on its surface and soldered. The components are generally soldered on the circuit board according to a specified design. The circuits are initially build and tested on a breadboard before being embedded on a PCB.

Electronic components that may be embedded on a PCB are of two types:

- Active
- Passive

Active Components

These components depend on a source of energy to perform their functions. They can amplify current and produce a power gain.

The following figure represents a list of active components:

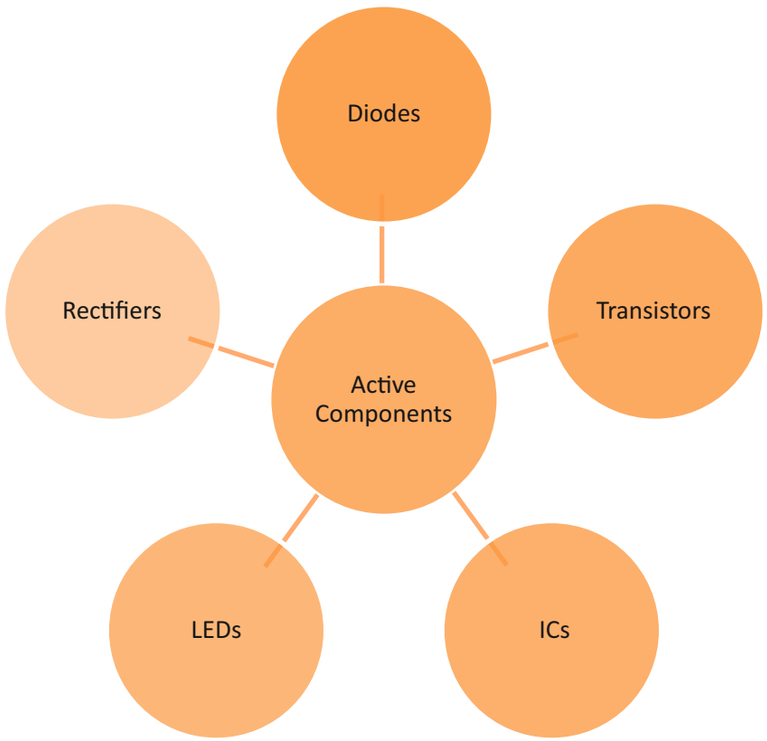


Fig 2.3.1: Active components

Diode

A diode is a specialized electronic component with two terminals known as the anode and the cathode. It has asymmetric conductance, which means that it conducts mainly in one direction. It has very less resistance (ideally zero), to the flow of current in one direction. It has high resistance (ideally infinite), in the other direction. Diodes are usually made up of semiconductor materials such as germanium, silicon or selenium. The following image shows diodes:

Fig. 2.3.2: Diodes

Transistor

A transistor is an electronic device, made up of semiconductor material. Usually, it has at least three terminals to connect to an external circuit. It is used to amplify or switch electrical po wer and electronic signals. The following image shows a transistor:

Fig 2.3.3: A Transistor

IC

An IC, also known as a microchip, is a semiconductor wafer on which a number of small resistors, capacitors and transistors are fabricated. It can work as an o scillator, an amplifier, a timer, a counter, a microprocessor or as computer memory. The following image shows an IC:

Fig 2.3.4: An IC

LED

An LED is a p-n junction diode which gives out light when it is activated. It is a two-lead semiconductor source of light. Energy is released as photons when a suitable voltage is applied to the leads. The following image shows an LED:

Fig.2.3.5: An LED

Passive Components

These components do not require any power source to perform their specific functions. They are not capable of controlling current. The following figure lists different passive components in a circuit:

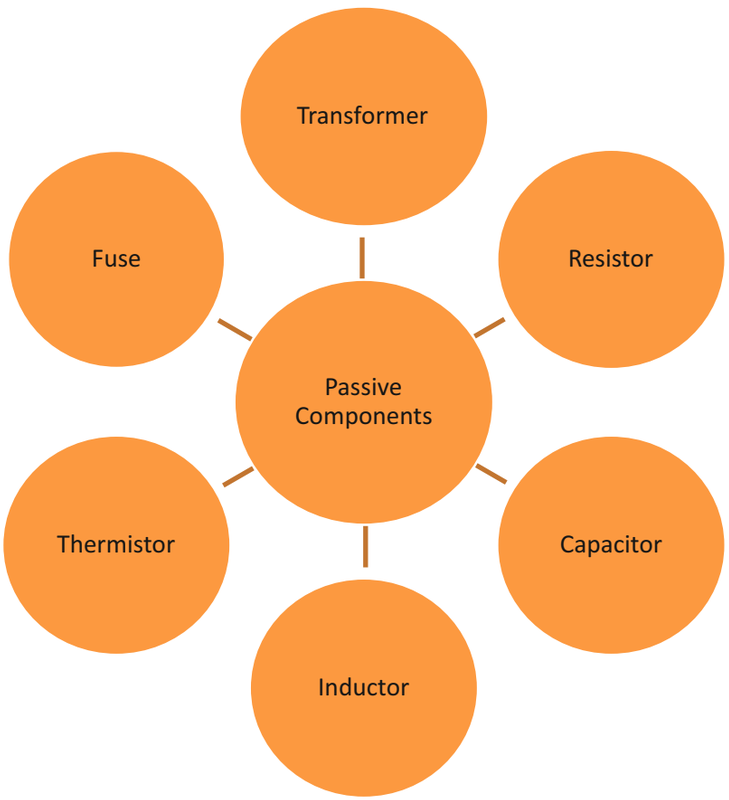


Fig. 2.3.6: Passive components

Transformer

A transformer consists of a metal core with coils of wire around it. It is a device used to convert AC to the required values by decreasing or increasing the alternating voltages in an electronic or electric system. The following image shows a transformer:

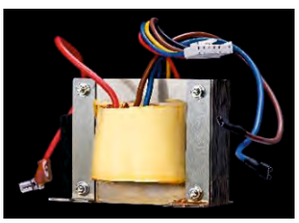


Fig 2.3.7: A transformer

Resistor

A resistor is a component in an electronic circuit which is built to resist or limit the flow of current in that circuit. It may be a small carbon device or a big wire-wound power resistor. Its size varies in length from 5mm up to 300mm. The following image shows different types of resistors:

Fig. 2.3.8: Resistors

Capacitor

A capacitor is a device which is made up of one or more pairs of conductors and an insulator separating them. It is used to store electric charge. The following image shows capacitors:

Fig. 2.3.9: Capacitors

Inductor

An inductor consists of a coil or a wire loop. This component is used to store energy in the form of a magnetic field. The more the turns in the coil, the more will be the inductance. The following image shows inductors:

Fig. 2.3.10: Inductors

Fuse

A fuse is a device which is used to protect electrical systems against excessive current. The following image represents a fuse:

Fig 2.3.11: A fuse

Types of Electronic Circuits

An electronic circuit is a combination of electronic components that are connected to provide flow of current. The different combination of wires and components allows different operations, such as amplification of signals, computation and transmission of data, to be performed. The following figure represents types of electronic circuits:

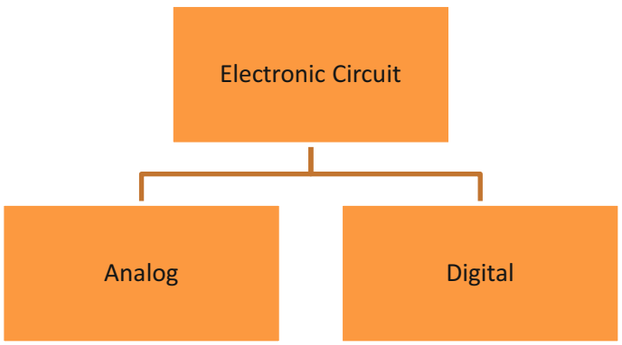


Fig. 2.3.12: Classification of electronic circuits

Analog Circuit

In analogue circuits, there is a continuous variation of voltage or current with time. These circuits are a combination of basic components such as resistors, capacitors, diodes, inductors and transistors.

The following figure represents an analogue circuit:

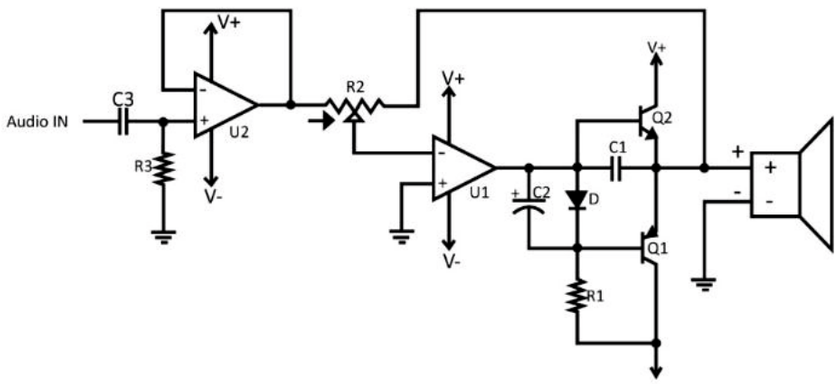


Fig 2.3.13: An analog circuit

Digital Circuit

Digital circuits use a binary scheme for digital signalling. Two different voltages (high or low) are represented by different logic levels. High voltage, generally 5V, represents one value and the other value represents low voltage that is generally 0V. The following figure shows a digital circuit:

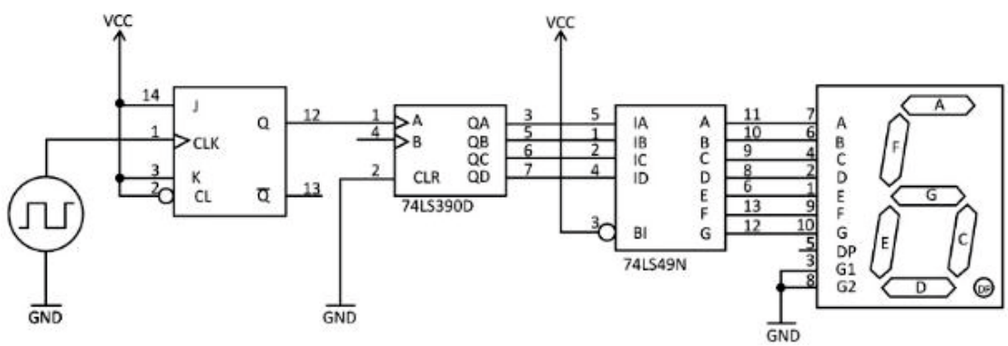


Fig. 2.3.14: A digital circuit

The following table describes basic building blocks of digital circuits:

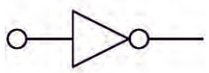
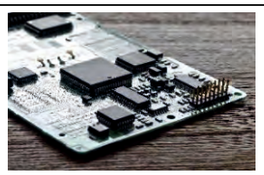
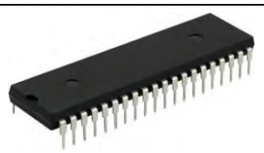
Logic Gates These are elementary blocks of a digital circuit. At any moment, the terminal voltage level is either high represented by 1 or low represented by 0	OR Gate The output terminal is at 1 when any of the inputs is 1 and is at 0 when all the inputs are at 0.	
	AND Gate The output terminal is at 1 when all the inputs are at 1, otherwise the output is 0.	
	NOT Gate/Inverter The output is 0 when the input is 1 and vice-versa.	
Microprocessor/Chip	An IC containing all the functions of a computer's CPU.	
Microcontroller	A small computer on an IC which controls devices that contain the microprocessor such as remote controls, office machines and appliances	

Fig. 2.3.15: Building block ofdigital circuit

Basic Integrated Circuits

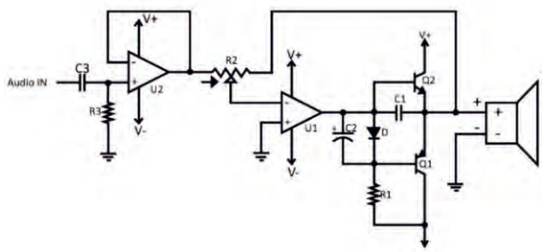
When an electronic circuit array is created by the fabrication process of different electrical and electronic components on a silicon wafer, then that circuit is known as Integrated circuit or simply IC. These circuits have operations similar to the large discrete electronic circuits made of discrete electronic components.

The following is an image showing integrated circuit of STB:

Fig 2.1.16: A Set top box circuit

Activity

Identify the types of circuit given below:



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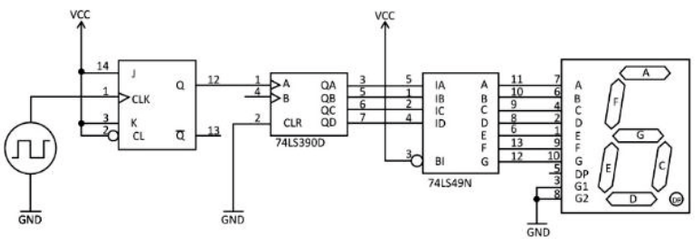

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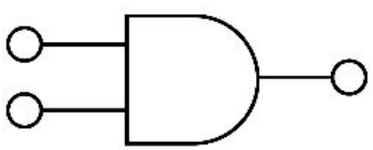

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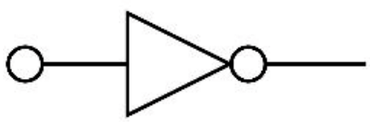

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Practical

Perform testing of an IC circuit for identifying the current, voltage and resistance across the components of the circuit. Use an IC circuit of a Set Top Box and a multimeter.

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3. DTH Assembly Components and Consumables

Unit 3.1 – Antenna Assembly Consumables

Unit 3.2 – Components Used for DTH Installation

ELE/N8105

Key Learning Outcomes

At the end of this module, you will be able to:

1. Identify antenna assembly components used in DTH installation
2. Explain the use of components in DTH installation
3. Describe the consumables used in DTH setup

UNIT 3.1: Antenna Assembly Consumables

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the consumables used in antenna assembly
2. Use the consumables for DTH installation on site

3.1.1 Antenna Assembly Consumables

All the consumables are provided in a package along with user manuals for installing and operating instructions of the components.

The first step is to open the packaging safely using a utility knife and then removing and disposing the packaging as per the instruction. The following image shows packaging of DTH consumables and utility knife used for unpacking:

DTH consumables packaging

Utility knife

Fig. 3.1.1: Packaging of DTH consumables and utility knife

The technician should then read the installation manual carefully to understand the correct installation method to be followed and refer to the manual while using the consumables.

The following image shows the antenna assembly consumables used for installing the DTH antenna assembly on the site:

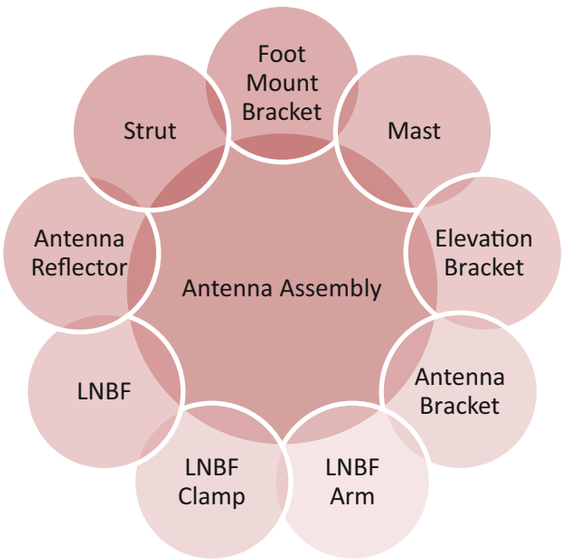

Fig. 3.1.2: Antenna Assembly Consumables

The functionality of the consumables are:

1. **Foot Mount Bracket:** This bracket is fixed to the surface where the dish Antenna has to be installed. It provides firm base for the installation of Antenna. The following image shows a foot mount bracket:

Fig. 3.1.3: Foot mount bracket

2. **Mast:** A ground-based vertical structure that supports antennas at a particular height where they can satisfactorily send and receive signals. It is fixed on the mounting bracket and is used to hold the elevation bracket to which the dish antenna is attached. The following image shows an antenna mast:

Fig. 3.1.4: Mast

3. **Elevation Bracket:** This part is connected to the mast and is used to move antenna at different angles which facilitates the proper alignment as per the requirement. The following image shows an elevation bracket:

Fig. 3.1.5: Elevation Bracket

4. **Antenna Bracket:** It is attached to the reflector and acts as a base on which the elevation bracket is fixed. Antenna bracket is attached to the reflector using dish mounting nut and bolts. The following image shows an antenna bracket:

Fig. 3.1.6: Antenna Bracket

5. **LNBF Arm:** It is fixed to the antenna bracket through the reflector with the help of grounding screws. It acts as a base for holding LNBF clamp and the device itself. The following image shows a LNBF arm:

Fig. 3.1.7: LNBF Arm

6. **LNBF Clamp:** It is attached to the LNBF arm and is used to hold the LNBF device. The following image shows a LNBF clamp:

Fig. 3.1.8: LNBF Clamp

7. LNBF**:** LNBF (Low Noise Block Filter) is the device which is placed in the front of the dish antenna. It receives the high frequency signal from satellite which falls on the dish antenna. This high frequency signal is then converted into lower frequency signal which is fed to the STB through the coaxial cable.

The following image shows an universal LNBF:

Fig. 3.1.9: Universal LNBF

The following figure shows the types of LNBF:

Single Port Universal LNBF	Dual Port LNBF	Quad	Quattro
•For one connection	•For two connections	•For three or four connection	•For more than four connections

Fig. 3.1.10: Types of LNBF

8. **Antenna Reflector:** The antenna reflector acts as a passive amplifier to amplify the signal in the start. The reflector is elliptical and parabolic in shape and is made from metal. The size of the dish depends upon the type of Ku signal received. The reflector reflects the signal received from the satellite at the focal point, where the LNBF receives the signal. The usual size of reflector used for DTH purpose is of a diameter about 60 centimetre. The following image shows an antenna reflector:

Fig. 3.1.11: Antenna Reflector

9. **Strut:** Strut is a structural component which is designed to resist the longitudinal compression. It acts as a support arm to give extra mechanical strength to the mast. Strut helps antenna base structure from deviating under its own weight or from any external pressure. The following image shows a strut:

Fig. 3.1.12: Strut

The following figure shows some dos and don'ts to be followed while handling consumables:

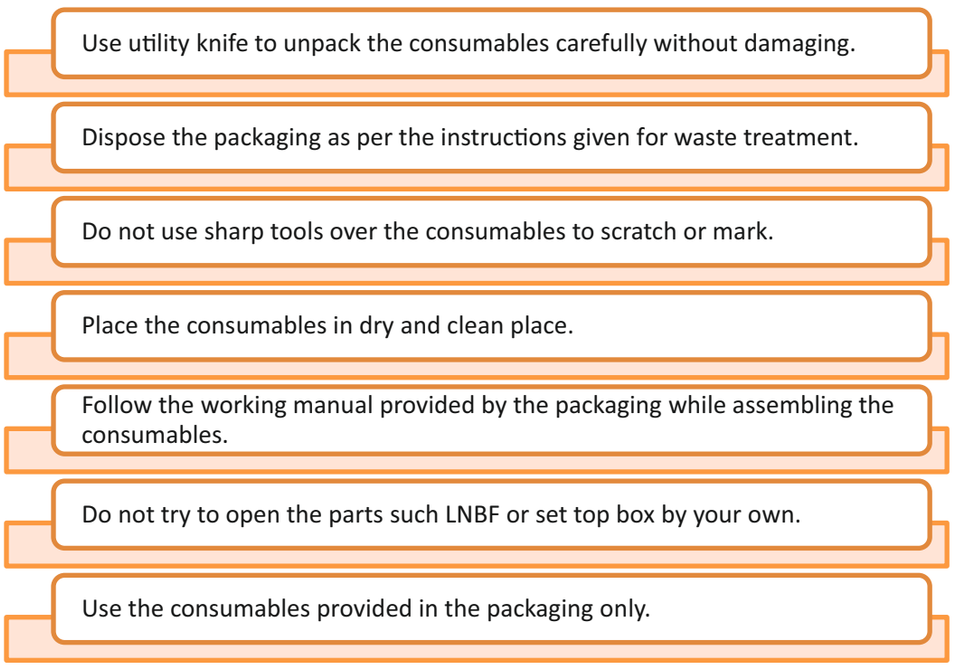

Fig. 3.1.13: Points to remember while handling antenna assembly consumables

Activity

Match the following consumables with their appropriate image:

Mast	
LNBF Clamp	
Foot Mount Bracket	
Strut	
Antenna Reflector	
Elevation Bracket	

UNIT 3.2: Components Used for DTH Installation

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the set top box components
2. Explain the set top box and cables used in DTH setup

3.2.1 Set Top Box

The set top box (STB) is a component which is used to demodulate the signal received from the LNBF and convert it into the desired form of audio and video signals, which can be transmitted to the television set.

The following figure shows the components of a STB:

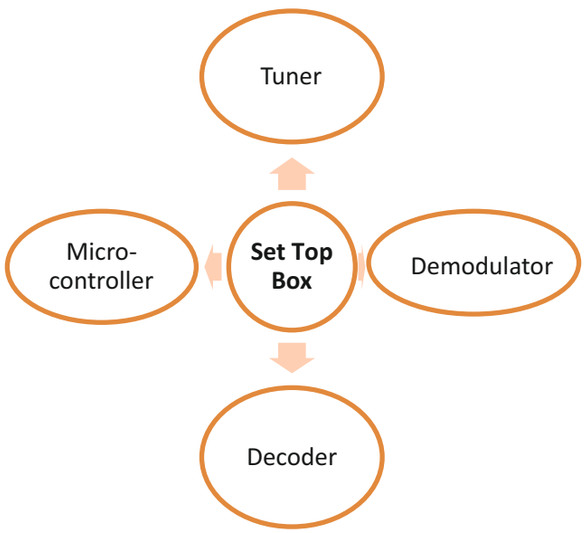

Fig. 3.2.1: Components of STB

Tuner

It selects a particular channel range from 48 MHz to 840 MHz

Demodulator

Selected channel is demodulated and fed on decoder.

Decoder

It decodes and convert the audio and video signals.

Microcontroller

It control all the process performed by the blocks.

The following image shows a tuner, demodulator , decoder and microcontroller installed in the STB:

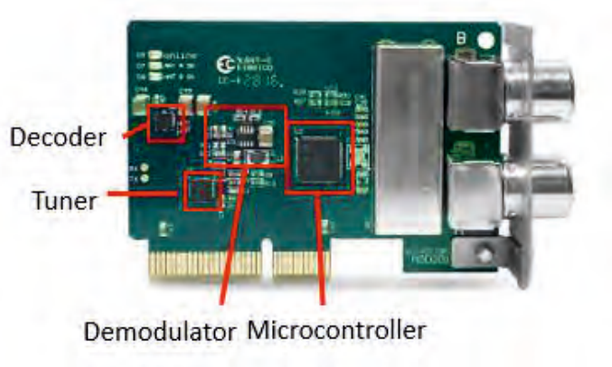

Fig. 3.2.2: Components in STB

The following figure shows the steps involved in working of a STB:

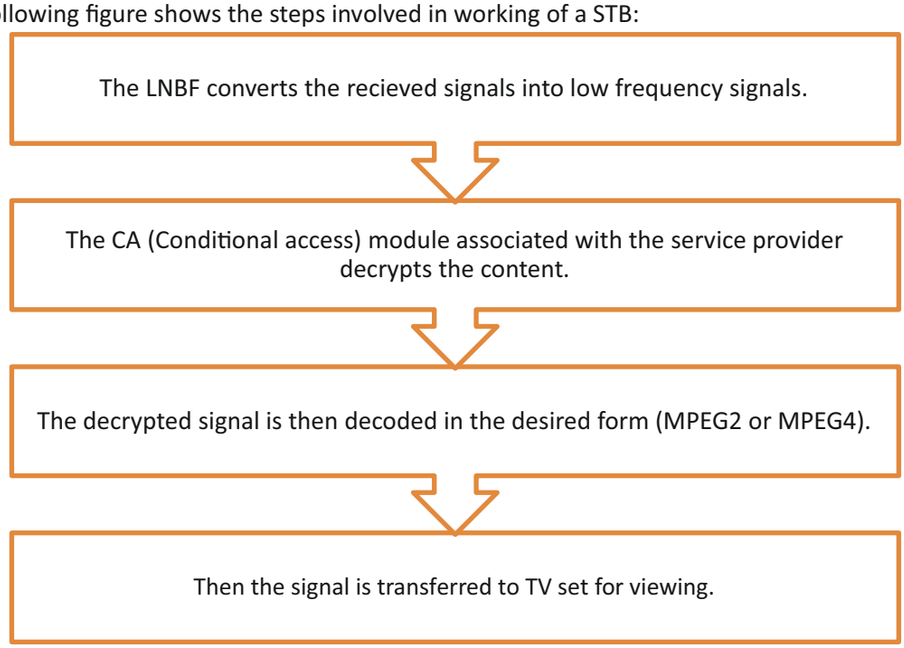

Fig. 3.2.3: Components of STB

The CA module in STB may be previously installed by the STB manufacturer or it can be a in a form of removable smart card. This is also called as DVB common interface (DVB-CI).

The following is a block diagram of STB:

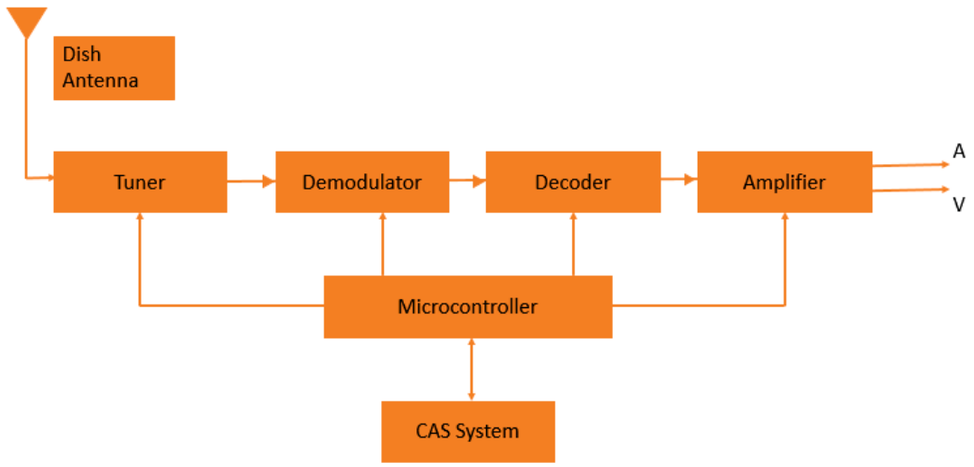

Fig. 3.2.4: Block diagram for set top box

The following figure shows the front and back panel of a STB:

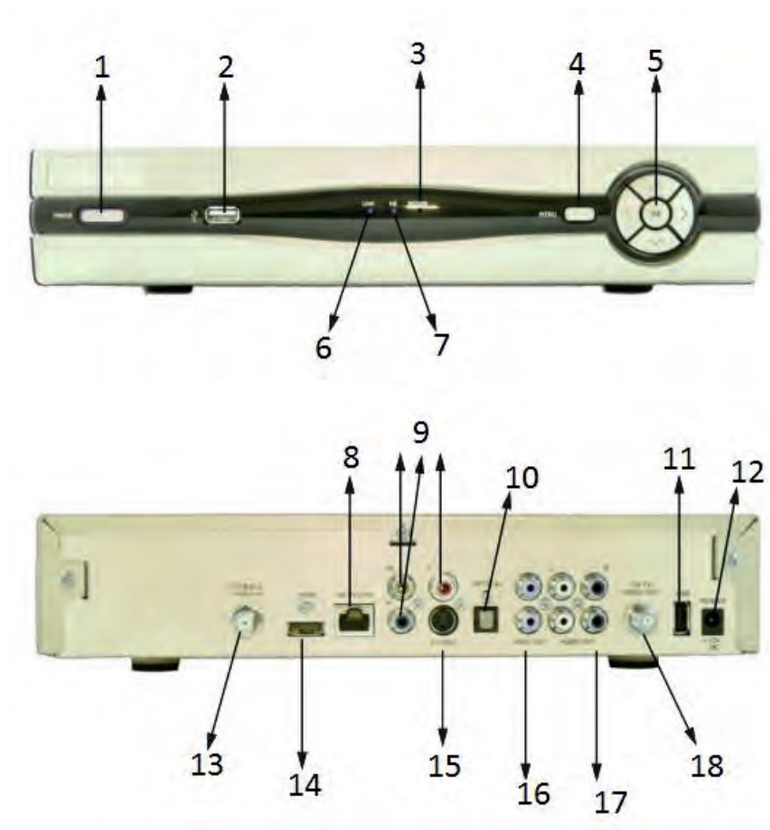

Fig. 3.2.5: Set top box

The labels marked in the preceding images are:

1. Power Button: Used to turn on/off the set top box
2. USB Connection: Used for USB media content access through STB
3. Record Light: Indicator shows that broadcasted content is bein g recorded
4. Menu Button: Used to access the menu options for the STB settings
5. OK Button: Used to select any option in the settings
6. Link Light: Indicates that the link from satellite in working
7. HD Light: indicates that the content on TV is broadcasted in hig h definition
8. Network Connection: Used to connect network cable for IPTV access
9. Component Connection: To connect the RGB cables
10. Optical Connection: To connect optical cable for content access through optical method
11. USB Connection: Used to access additional device with USB compliant
12. Power Outlet: Power chord is attached to provide AC power to the STB
13. Cable Connection to Wall: Used to connect the coaxial cable from the LNBF arm
14. HDMI Connection: Used to connect the HDMI cable with HDMI compliant devices
15. S Video Connection: Used to connect standard video cable for standard TV viewing
16. Video Out: Video output cable is attached
17. Audio Out: Audio output cable is attached
18. Cable Connection to TV: Used to connect cable for RF signals

Coaxial Cable

The coaxial cable is used as a transmission line for the radio frequency signals received at LNBF to the STB.

The advantage of coaxial cable is that the signals are protected from electromagnetic fields. The cable carrying the radio signals allows the signal to flow only between the inner and outer conductors of the cable. Thus, it is possible to install this cable near any metal structure and ensure that there would be no power loss. The cable also protects the inner signal from any interference from outer signals. The following figure shows the structure of a coaxial cable:

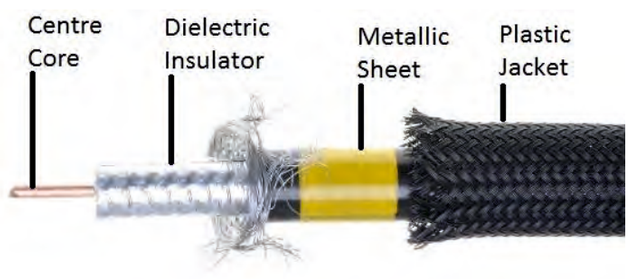

Fig. 3.2.6: Coaxial cable

RCA Cables

The RCA cables are three different color coded cables with male connectors attached to their ends and are used to provide audio and video signal from STB to the TV set.

The colour code is:

- Yellow – Composite video
- Red – Right audio channel
- White/black – Left audio channel

The following image shows a RGB cable:

Fig. 3.2.7: RCA Cable

Power cable:

AC adapters are used as line power suppliers for STB. It contains a sm all transformer which converts the mains high input electric voltage into lower voltage. A rectifier converts the pulsating DC into a smooth pulsating waveform of DC. This prevents the STB from any high voltage electrical damage. The following image shows an AC adapter used in STB:

Fig. 3.2.8: AC adapter

3.2.2 Television Set Components

Television is a telecommunication medium which is used for transmitting moving images with sound. Digital television (DTV) allows the transmission high quality of audio and video by digitally processing and multiplexing the signals. This compression of the signal support more than one program in the same channel bandwidth. The following is an image of front and back panels of a television:

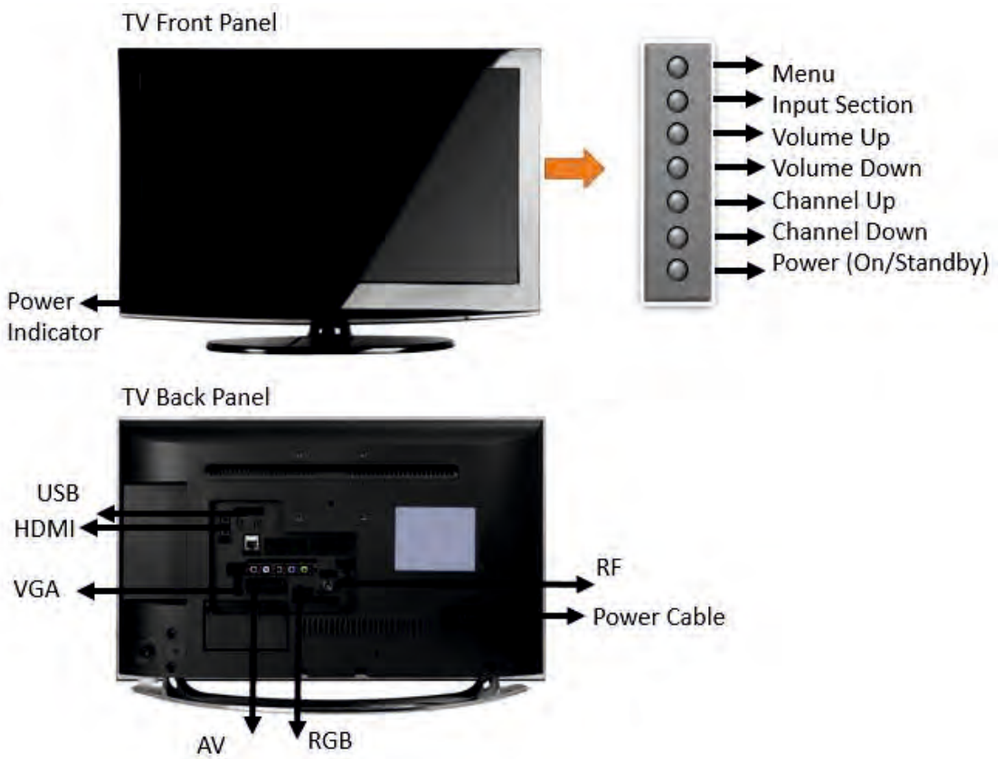

Fig. 3.2.1: Television front and back panel

Inputs available for TV are:

1. **RF (Radio Frequency):** It modulates the audio/video signals from different devices and converts those signals into a format that is suitable for devices which are designed for modulated RF input of television set.
2. **AV (Audio/Video)**: The input is a label on a connector to receive the audio/visual signals from the devices that generate those signals. The terminals are on the devices which typically act as the output devices such as television and PC and they take input from the devices such as a DVD player and set top box which provide those audio/video signals.
3. **RGB (red, green, blue):** RGB is an analog component video standards which does not compress and impose real time on colour depth or resolution of the signal. Therefore, it requires large bandwidth to carry out this signal and this contain much of redundant data.

4. **Video Graphics Array (VGA)**: This is a connector with three-row 15-pin DE-15. This 15 pin VGA connector is used for high definition television viewing. The 15-pin VGA connector is provided on devices such as computer monitors and projectors for high definition viewing.
5. **USB (Universal Serial Bus):** It is a standard which is used for the cables, connectors and communications protocols for the purpose of connection, communication, and power supply between electronic devices.
6. **HDMI (High-Definition Multimedia Interface)**: It is an interface for transmitting uncompressed audio/video data over the HDMI-compliant devices such as digital TV and projectors. It is a digital replacement for analog video standards.

Activity

Determine which of the following a consumable item is.

1. RGB cables
2. Drill machine
3. Screws and bolts
4. Clamp
5. Dish antenna
6. Mast
7. Sat meter/Sat finder
8. Satellite reference chart
9. LNBF
10. Set top box

Practical

Perform the task of determining the LNBF skew angle.

Tools/equipment :

- DTH antenna assembly.
- Inclinometer, spirit level meter,
- Tool box with wrench set and screw driver

Practical

Perform the task of connecting a set top box and a television set.

Tools/equipment

- RGB cable
- STB AC adaptor
- TV set
- STB with remote
- Coaxial cable connected with dish antenna
- RG 6 cable connector
- Cable crimping and cutting tool
- Power plugs
- Safety equipment's

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4. Installing DTH on Site

Unit 4.1 – Planning for Installing DTH on Site

Unit 4.2 – Installing Dish Antenna Assembly

Unit 4.3 – Connecting Cables and Making Adjustments

Unit 4.4 – Basic Troubleshooting of DTH

ELE/N8105

Key Learning Outcomes

At the end of this module, you will be able to:

1. Plan for installation of DTH on site
2. Identify the potential mounting sites for antenna assembly
3. Install antenna for DTH
4. Set up cabling and connections required for DTH

UNIT 4.1: Planning for Installation of DTH on Site

Unit Objectives

At the end of this unit, you will be able to:

1. Create a basic plan to be followed for installing DTH on a site
2. Identify appropriate point for installation

4.1.1 Basic Plan

A basic plan for installation needs to be created first after observing and locating the site for the installation of dish setup. The planning involves locating site, positioning dish and making all necessary adjustments to meet the working standards. The following figure shows some steps to be followed to make a basic plan for installing dish on site .

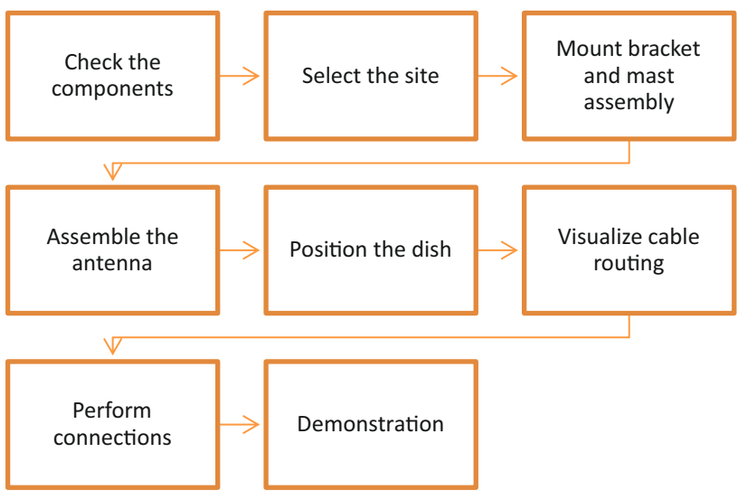


Fig. 4.1.1: Steps for installing DTH on site

The various tasks involved in the preceding steps are:

1. Check the components

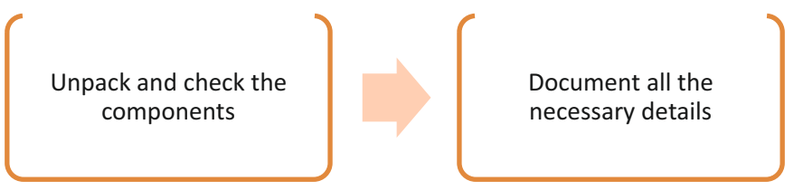


Fig. 4.1.2: Check the components

2. Select the site

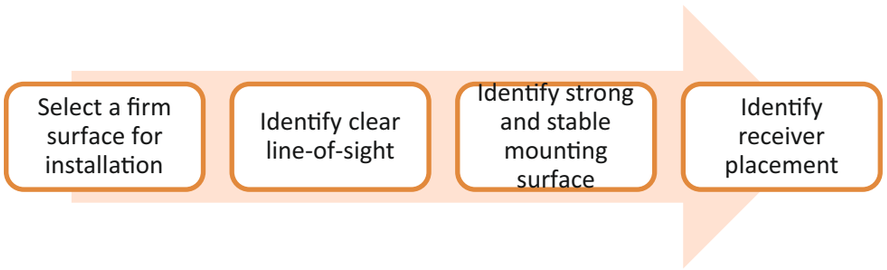


Fig. 4.1.3: Select the site

3. Mount bracket and mast assembly

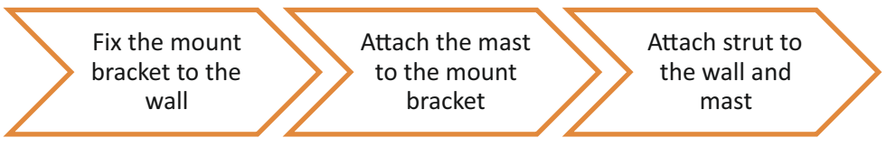


Fig. 4.1.4: Steps for bracket and mast assembly

4. Assemble the antenna

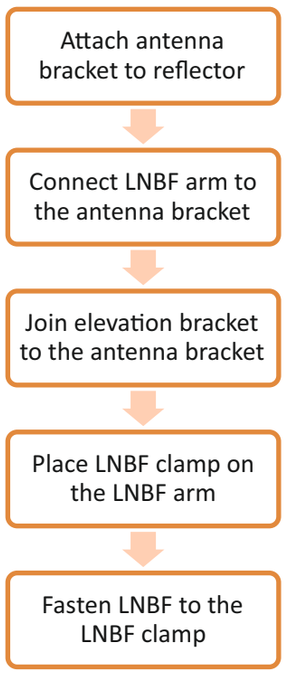


Fig. 4.1.5: Assembling antenna

5. Position the dish

Fig. 4.1.6: Position the dish

6. Visualize cable routing

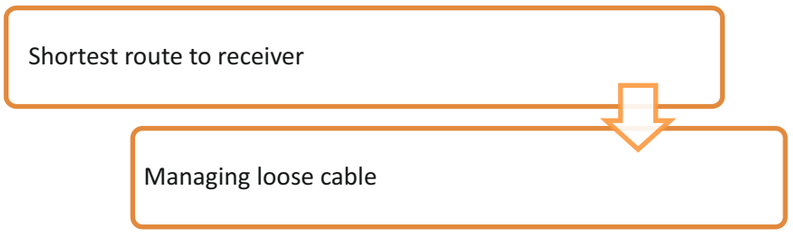


Fig. 4.1.7: Cable routing

7. Perform connections

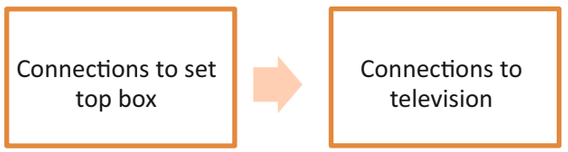


Fig. 4.1.8: Perform connections

8. Demonstrate

The following image figure shows steps performed in different stages involved in planning of DTH on site:

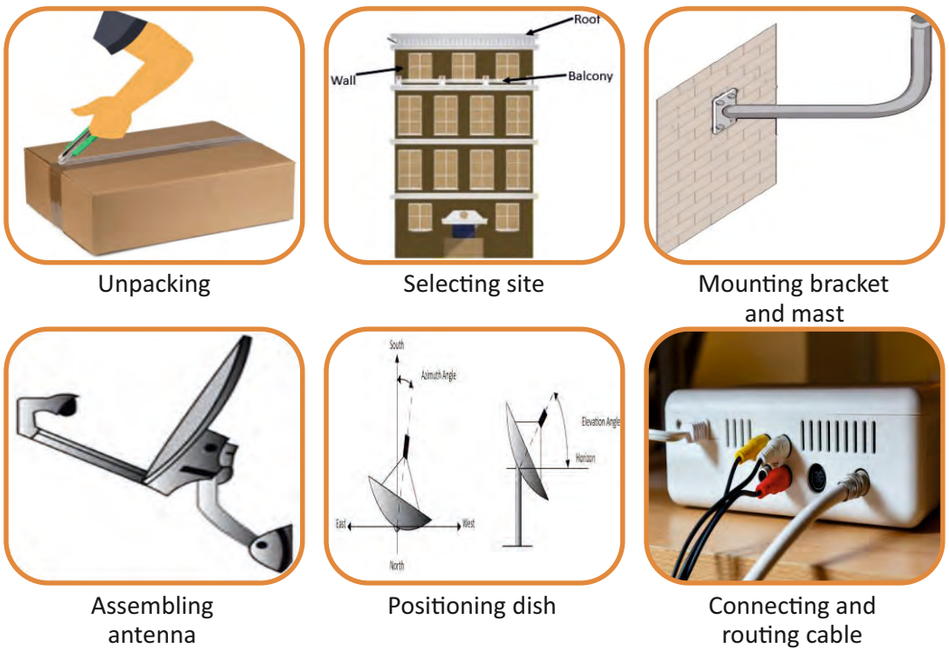


Fig. 4.1.9: Stages in panning DTH installation

4.1.2 Points to Consider before Selecting Site

While surveying the site for locating the appropriate place for DTH antenna installation, some important considerations should be kept in mind.

At the time of installation of dish, most of the errors and m istakes are done while locating a suitable site for the installation. These errors are very time consuming to rectify as they require correction and re-installation later. The following figure shows some unsuitable sites for installing DTH dish:

Fig. 4.1.10: Unsuitable sites for installing DTH dish

Therefore, for selecting the location for dish antenna installation and mounting the antenna, some considerations should be made to minimise these errors. The following figure shows the considerations while considering a site for installation of dish:

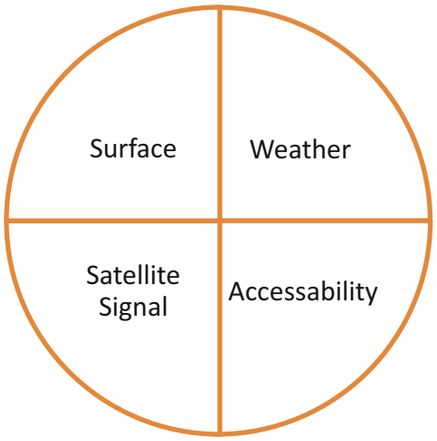


Fig. 4.1.11: Considerations while selecting site for dish installation

- **Surface Considerations**

  The surface should provide a better grip and strength to the hold the antenna assembly. The surface can be any of the type – brick, wood, rooftop, or a pole. It should be ensured that the surface is of is strong and firm, so that drilling operations can be performed over the surface. The following image shows a dish mounted on a brick wall:

Fig. 4.1.12: Dish mounted on a brick wall

- **Weather Considerations**

  The satellite antenna is made to withstand most of the weather conditions such as heat, rain or snow. So while selecting the location it should be ensured that the surface is stable and strong to prevent the antenna from unwanted movement because of wind. Also, the signals received by the antenna should not interfere.

The following image shows a dish mounted on a roof in rainy weather:

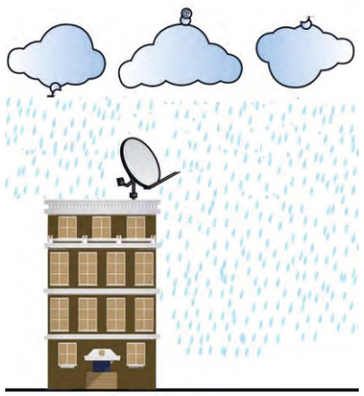


Fig. 4.1.13: Dish in rainy weather

- **Satellite Signal Consideration**

  The site should be selected so that the satellite signals can be received by the dish and there should be no obstruction in the line of sight for the signal. Install the dish on an elevated surface for clear line of sight away from trees, buildings or towers such as structure that comes between the dish and satellite signal. The following image shows clear line of sight for a DTH installation:

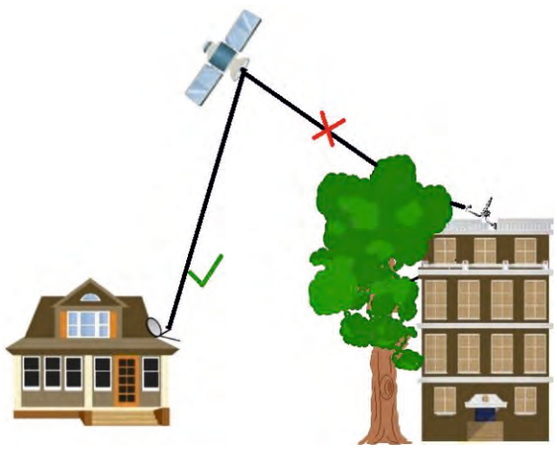


Fig. 4.1.14: Dish installation with clear line of sight

- **Accessibility Consideration**

  The antenna should be accessible so that it can be cleaned from dirt or dust as per the routine maintenance of the dish. The satellite antenna should be close to the receiver to minimise the signal lose between them.

The following image shows the dish installed at a location accessible at the time of maintenance:

Fig. 4.1.15: Dish installed at different locations in a house

Right Location for Dish Installation

The following figure shows the features of a right location for the installation of dish:

Clear Line of Site:	Strong and Stable Mounting Surface:	Placement of the Receiver:
•Ensure that there is no obstacle in the line-of-site of antenna. •There should be no trees, buildings or other structure betwen the line of sight of the satellite.	•The antenna should be installed on a stable and strong surface to restrict any undesired movement of the antenna. •A surface should be strong enough to perform drilling operations.	•Ensure to install the dish antenna assembly near to the receiver to ignore the signal loss over the transmission line.

Fig. 4.1.16: Considerations while selecting site for dish installation

4.1.3 Placing the Dish Antenna

The dish of the antenna should be placed at a location in the premises so that the uninterrupted satellite signals can be received in all seasons, weather conditions and over the year. Make sure that there is no blockage which would interrupt the satellite signal.

The following figure shows the components that are required for locating the dish antenna to the right direction of the satellite:

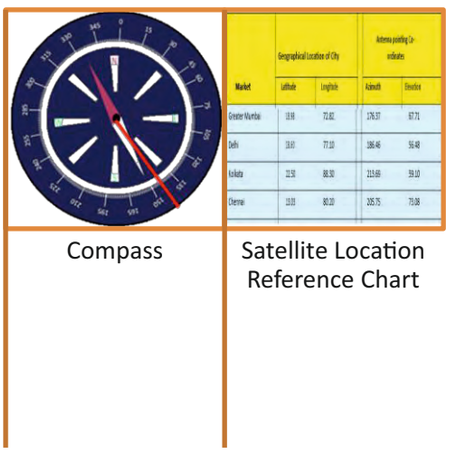


Fig. 4.1.17: Compass and Satellite Location Reference Chart

Note: It is very important to find a clear "Line of Sight". This implies to locate a spot so that the dish antenna has an unobstructed signal receiving from the satellite. Obstructions can be like trees, buildings, or any structure. Ensure that any sapling trees nearby will not grow and create an obstruction in the line of sight after few seasons.

Steps to estimate direction of satellite:

1. Take the compass to determine the directions (North -East-West-South).
   Then determine the direction and elevation as per the location from the Satellite Location Reference Chart for the satellite antenna direction.
2. Ensure that while using compass it is not under influence of any other metal, magnetic object or electrical device.
   Make sure that the needle swings freely and align the ark end of the needle to the 'N' direction of the compass by turning the compass carefully.
   Then the direction towards the needle is pointing is the magnetic north of the earth. The compass face is divided into four parts of 360 degrees, thus the 'North' is towards zero degrees (0°), 'East' is towards (90°), South is towards (180°), and West is towards (270°). The following image shows dish position according to directions:

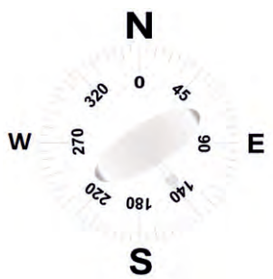


Fig. 4.1.18: Dish positioning as per the directions

3. Refer to the Satellite Location Reference Chart find the direction number on the compass. Turn towards the number while the needle in the compass is pointing towards the North. Mark this direction as the direction of the satellite. Now find a location in the direction marked for installing the dish antenna assembly. The following image shows dish positioning as per the polarisation angle:

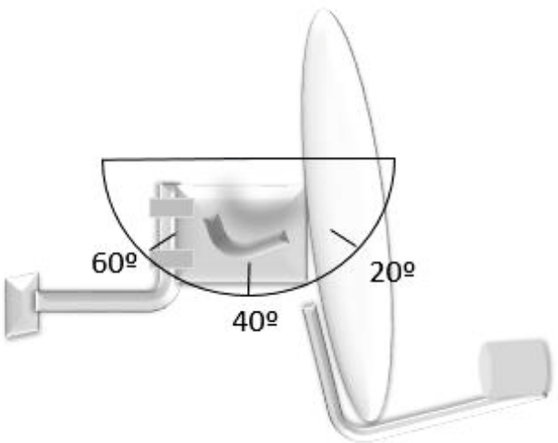


Fig. 4.1.19: Positioning of dish as per the elevation angle

4. Now using the chart determine the elevation number for the location. Stand near the marked area for the satellite location and find the closest approximation angle in the sky by using the elevation angle.

   The direction found is the direction of the approximate direction of the satellite.

5. Ensure that the location is free from any obstruction like tree, building or any other structure. Make sure to leave a margin so that antenna can be adjusted if there is any obstruction in the line of sight of the signal.
6. If the correct direction is not located then repeat the step 1 to 4 to locate the correct dish positioning. Else consult to you supervisor if there is any doubt in locating the right dish positioning. The location for installing the antenna assembly should be stable and sturdy to provide strong support to the assembly.

4.1.4 Mast or Pole Assembly Orientation

The most important aspect of a DTH antenna structure installation is that the upper portion of the mast and the mounting pole assembly should be vertical that is, at 900 from the ground. If the assembly is not correctly aligned then the receiver on the location will be inaccurate and it will make the positioning of the dish towards the satellite very difficult.

The following image shows correct and incorrect pole mounting:

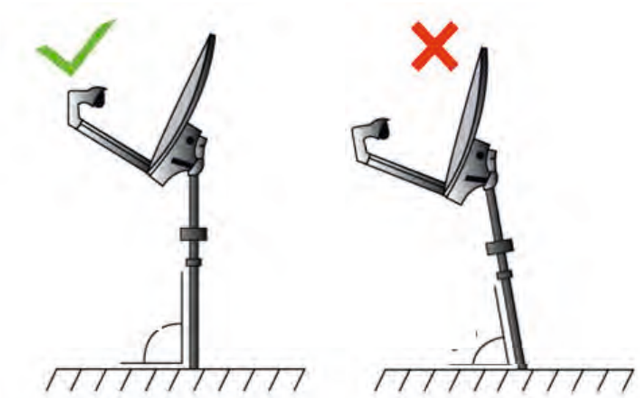


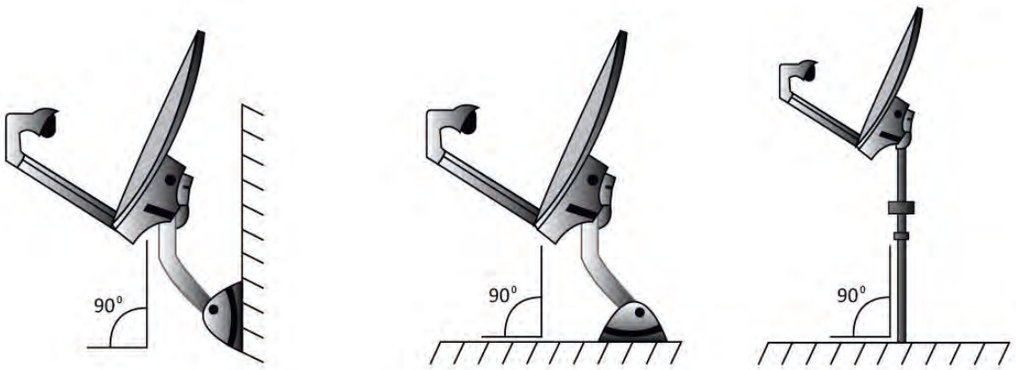
Fig. 4.1.20: Correct and incorrect mounting of dish

The following image shows types of dish mounting:

Fig. 4.1.21: Types of mounting for DTH

Activity

Identify the types of DTH mounting:



(a) (b) (c)

Write down the items you would require for doing the correct positioning of the dish.

1. _____.
2. _____.

Mention any three points need to be considered while locating site for dish installation.

1. _____.
2. _____.
3. _____.

Practical

Position the dish towards the correct position for the location of performing the practical using following equipment and tools.

Tools/equipment:

- Compass
- Sat meter/sat finder
- Satellite location reference chart.
- Wrench set

(Hint: Use the compass and satellite reference chart to estimate the location of satellite)

UNIT 4.2: Installing Dish Antenna Assembly

Unit Objectives

At the end of this unit, you will be able to:

1. Assemble the mount and bracket
2. Install the dish

4.2.1 Mount Bracket and Mast Assembly

Before installing the antenna mount assembly, ensure that the coaxial cable can be routed easily from the mounting location inside the house where STB is installed.

If the mounting site is over the roof or someplace where you van not perform the satellite antenna assembly then assemble the antenna previously. Use personal protective equipment's such as safety line and safety helmet while performing the installation at a location where you need to climb.

The assembly of mount bracket and mast can be done by following a two-step process. The following figure shows the steps involved in mount bracket and mast assembly:

Fig. 4.2.1: Steps involved in mount bracket and mast assembly

Fix the Mount Bracket to the wall

Make sure that the mount and bracket assembly is affixed firmly to the structure. All the fasteners, screws and bolts are of tight fitting so that the structure remains stable in windy situations.

To fix the mount bracket to the wall, we need to p erform the following tasks:

1. Check the smoothness surface where the mount has to be fixed using the spirit level meter.
2. Place the mount bracket to the wall and set it to the position which is upright (at 90 Degrees to the floor). This would again be done with the help of spirit level meter. The following image shows the checking the smoothness of wall using a spirit level meter:

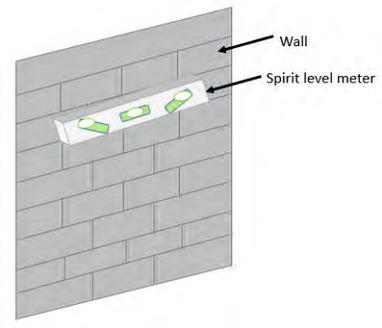


Fig. 4.2.2: Check wall smoothness using spirit level meter

3. Once placed, mark the area where to drill the holes in the wall to hammer-in the anchor bolts. Marking will be done using the permanent marker.
4. Drill the holes in the wall using the drill machine and an appropriate bit. The diameter of bit would depend on the diameter of bolt we will be using it for. In this case, it is for anchor bolt. Once selected the right bit, proceed as follows:

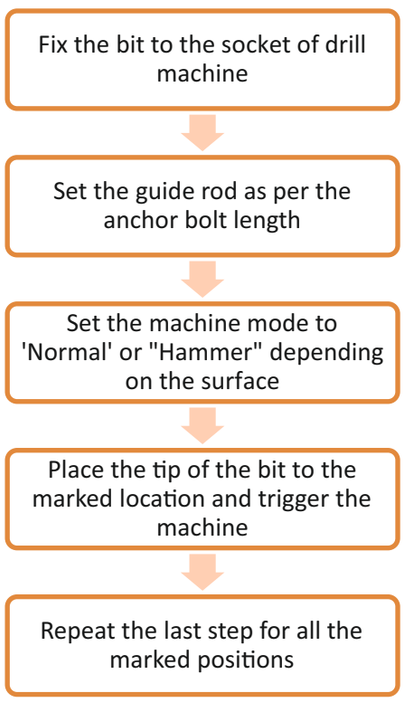


Fig. 4.2.3: Steps to drill hole for anchor bolt

The following image shows drilling holes in a wall using a drill machine:

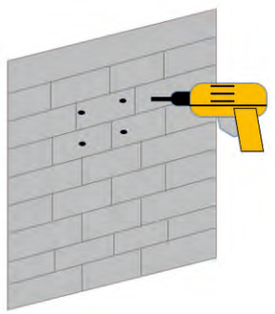


Fig. 4.2.4: Drilling wall using a drill machine

5. Blow the loose dust from the holes using the blow pump. Though it looks immaterial but it is very important as the dust particles might cause some problem with the grip of anchor bolt.

   The following image shows use of a blow pump to loose dust from the drilled holes:

Fig. 4.2.5: Use of blow pump to loose dust from drilled holes

6. Put the anchor bolts in the drilled holes in the wall. Hammer the bolts into the holes so that they go all the way in.

   Then, tighten the bolt with the help of spanner so that they grip the wall firmly providing a firm and strong base for antenna installation. Once they are fixed tightly in the wall, unscrew the bolt and put them in the mount bracket holes and secure them tightly in the wall. The following image shows placement of washer, screw , L mount and fixing:

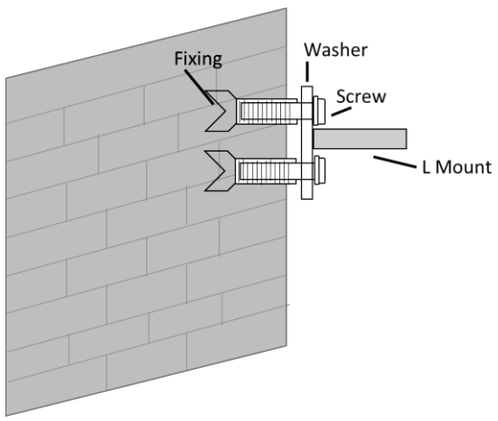


Fig. 4.2.6: Placement of washer, screw, L mount and fixing

Attach the Mast to the Mount Bracket

Once the mount bracket is attached to the wall, follow the steps to attach the Mast:

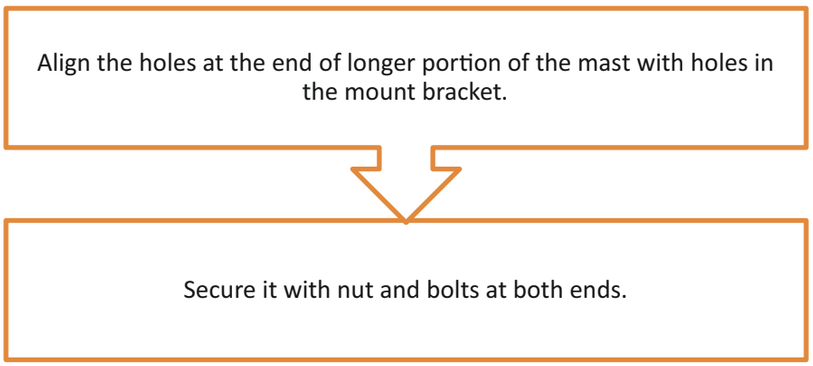


Fig. 4.2.7: Attach mast to mount bracket

Attach Strut to the Mast

With the mast fixed to the mount bracket firmly, there is a solid base ready to mount antenna. However, as the saying goes, it is better to be safe than sorry, therefore add another support to this entire structure to provide it some more mechanical support. This will ensure absolutely no movement of mast or any other component. Attach the strut to the mast in the following way:

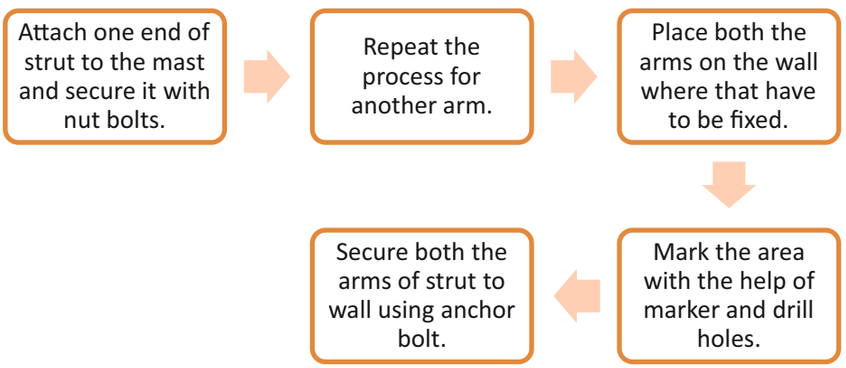


Fig. 4.2.8: Attach strut to mast

Ensure that the mast is secured in such a way that it's at 90 degrees with the earth plane. While fastening the mast with the structure ensure that the top is in vertical position with the ground. Use the spirit level on front and side of the top piece of the mast for correct positioning.

Special Mountings

Different types of mounting is done as per the location at which the assembly need to be installed. The following figure shows the different types of mounting that can be done:

Pipe Mounting

This type of mounting is used where standard mounting/trut fixing is not possible.

The two brackets are fixed to the wall using anchor bolts which holds the pipe.

Dish can be rotated all 360 degrees.

Sandwich Mount

This type of mount is used when the line of site is available from a balcony and there is no wall for the installation of dish.

The grill mesh is sandwiched between two solid steel plates to give a firm support to the antenna assembly.

Base Mount

This type of mounting is used when the line of site is not available from any wall or railings.

The dish has to be installed on the roof top or floor of balcony.

A rectangular base holds the floor firmly over which the antenna is fixed by using elevation bracket, struts and mast.

Fig. 4.2.9: Types of mountings

4.2.2 Assemble Antenna Assembly

For assembling antenna, a five-step process need to be followed. The following figure shows the steps involved in assembling antenna:

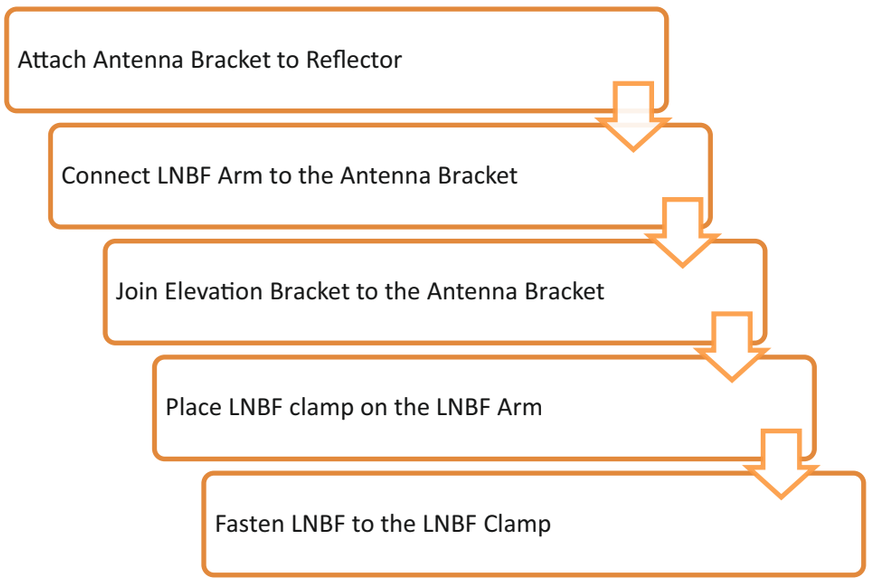


Fig. 4.2.10: Assembling antenna assembly

Attach Antenna Bracket to Reflector

Place antenna bracket in line with the holes in the dish reflectors an d secure it with the help of possipan screws. These are the special types of screws specially designed for this purpose as they do not disturb the signal's reflecting angle. Tighten the screws diagonally.

Connect LNBF Arm to the Antenna Bracket

Once the antenna bracket is fixed to the reflector, connect the LNBF Arm to the slot in the antenna bracket with the help of small screws.

Join Elevation Bracket to the Antenna Bracket

Place Elevation Bracket over the antenna bracket in the slot meant to hold it. Sec ure it with the help of nut and bolts and spanner. Once secured, put a pair of clamp bolt to put in the Mast slot. This will help in gripping the mast to the elevation bracket firmly.

Place LNBF Clamp on the LNBF Arm

Place the LNBF clamp over the LNBF arm and align it with the arm hole. Secure it with a screw. Make sure that you attach LNBF clamp in the end to avoid chances of breaking it while assembling rest of the components.

Fasten LNBF to the LNBF Clamp

Place the LNBF along the LNBF clamp and fix it with the help of screw.

Dish antenna is now ready for further installation.

Before Aligning Dish

The first step is to make sure that the antenna assembly is in vertical position from the ground. Then adjust the elevation, azimuth or skew axis of the antenna assembly slowly to look for the effect of the signal received.

For aligning the dish some basic steps can be performed. The following figure shows the steps performed in aligning the dish antenna properly:

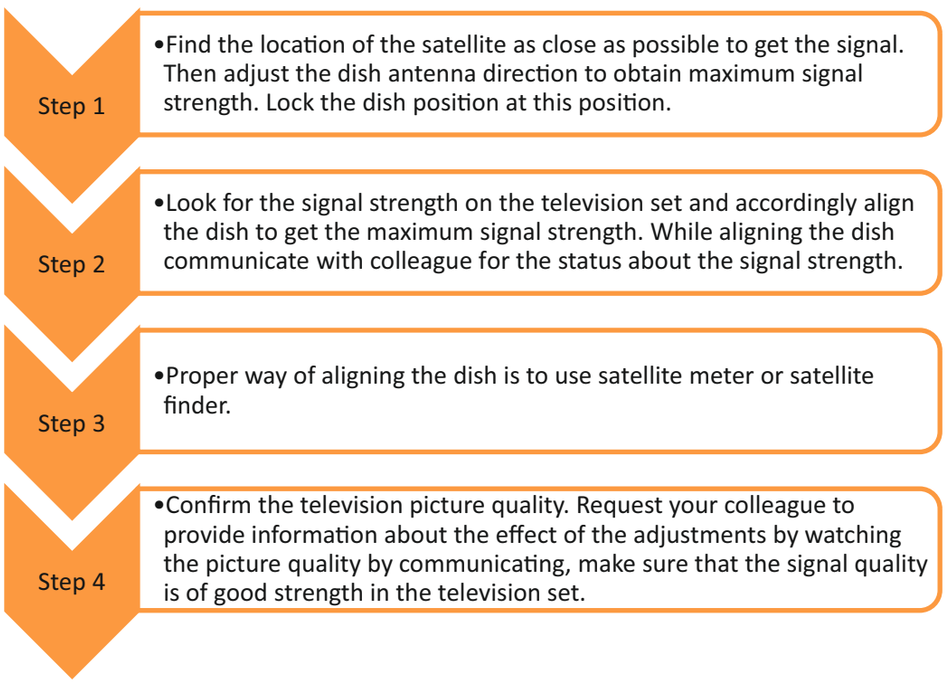


Fig. 4.2.11: Steps involved in aligning the dish

Activity

Arrange the given steps for assembling strut to mast in correct order.

1. Mark the area with the help of marker and drill holes.
2. Repeat the process for another arm.
3. Attach one end of strut to the mast and secure it with nut bolts.
4. Secure both the arms of strut to wall using anchor bolt.
5. Place both the arms on the wall where that have to be fixed.

Practical

Perform assembling of an antenna using the following components:

- LNBF arm
- LNBF clamp
- Antenna bracket
- Reflector

Practical

Perform dish mounting of a wall mounting of mast assembly using the following tools and equipment:

- Tool box
- Drill machine
- Spirit level meter
- Mounting consumables (Bolts, nuts, mast, strut, mount bracket)

UNIT 4.3: Connecting Cables and Making Adjustments

Unit Objectives

At the end of this unit, you will be able to:

1. Identify how to position dish correctly
2. Identify necessary cable and other connections to be made

4.3.1 Dish Positioning

The positioning of the dish should be done so as to get proper signal from the satellite. The following image shows the basic steps involved in positioning of the dish:

Fig. 4.3.1: Steps involved in aligning the dish

Place Antenna over Mast

Place the elevation bracket over the mast and let it slide on to it. At a point it will automatically stop. The following image shows the placement of antenna over the mast:

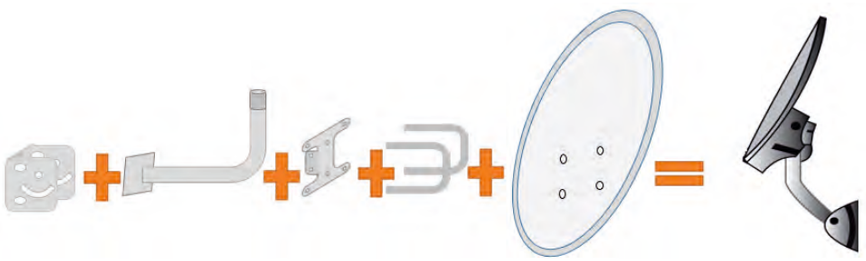


Fig. 4.3.2: Placement of antenna over the mast

Align Antenna with Satellite

To align antenna with satellite, follow the steps:

1. Connect one end of service lead to the Sat-meter/Sat-finder and the other to the LNBF socket. Switch on the Sat-meter or sat-finder only after connecting both the cable ends.
2. Clear the reflector's line of site and trace the satellite using sat-meter. Move the reflector left - right and up - down to get proper signal strength.
3. Upon finding the correct angle and position with respect to satellite as per coordinate table, determine the degrees of angle using inclinometer. Place the inclinometer over LNBF arm and read the exact elevation angle. Once the angle is known, set the antenna at the same angle.

4. Once the elevation of the antenna is set, tighten the clamp bolts in the elevation bracket to provide firmness to reflector.
5. Switch off the Sat-meter/ sat-finder and remove service lead from LMBF socket and from sat meter as well.

The following figure shows alignment of antenna with the satellite:

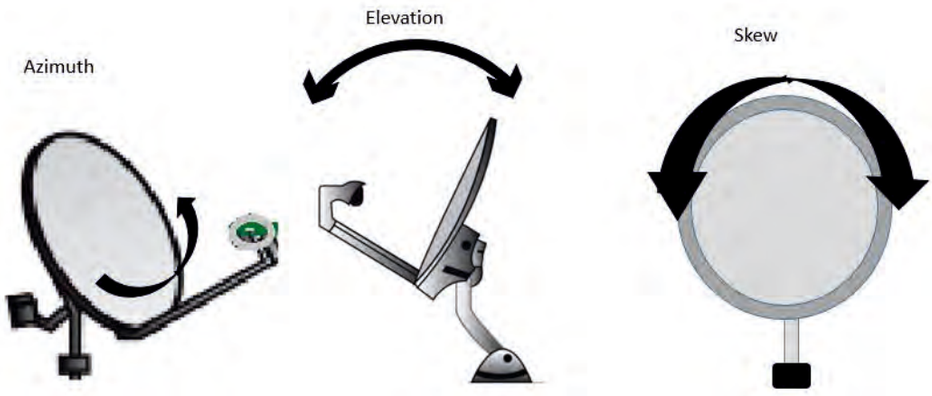


Fig. 4.3.3: Alignment of antenna with satellite

Connect cable to LNBF

To connect cable to LNBF, follow the steps:

1. Place the end of cable that has to be connected to the LNBF socket in the Cable Preparation Tool and press it close. Ensure that the cable end is in line with the Cable Preparation Tool's side.
2. Rotate it 3 -4 times in both the directions. This will take off the cable jacket uniformly leaving the copper wire exposed.
3. Folded the wire mesh of coaxial cable backwards neatly.

   Note: It is very important to fold back all the wires of the mesh as otherwise it may cause a short circuit.
4. Attach connector over the open end of cable. Place the wire with connector into the compression tool. Press it to fix the connector to the cable.
5. Connect the cable to the dish antenna. (LNBF socket)

   Note: Use two connectors during the installation. One at the LNBF end and one to connect coaxial wire at STB end. Ensure that the one used at LNBF end is the one with weather seal. This seal helps in preventing seepage of rain water or moisture.

The following figure shows the connection of cable with LNBF:

Fig. 4.3.4: Connection of cable with LNBF

4.3.2 Cable Routing

Cable routing is an important part of installation that needs to be done very carefully as the signal strength depends upon the cable length and if the cable is affected by any means, the signal would be lost. The following figure shows the basic steps of cable routing:

Fig. 4.3.2: Steps involved cable routing

Shortest Route to Receiver

Signal strength decreases as the length of cable increases. Therefore, it is important to find the shortest route to receiver.

Managing Loose Cable

Managing the RG 6 cable that runs from LMBF to the receiver is highly important for various reasons, such as:

- If the cable hangs loose, it would apply pressure on the antenna or dish reflector which will lead to a change in elevation angle or the direction of reflector.
- Loose cable would be more prone to cut or abrasions which ultimately cause disturbance in the signals.
- Helps preventing many environment related problems.
- Managed and organized cable looks more professional. Looks aesthetically nice as well.

The cable can be managed in the following manner:

To LNBF Arm:

1. Start by fastening the loose cable to LNBF arm using cable tie. Ensure that the cable is not stretching at the socket.

2. Give a service loop to the cable of around half a meter and fasten it to the Mast right below the elevation bracket with the help of cable tie. This service loop acts as a spare cable which can be used in case the end portion gets damaged due to some reason.
3. Fasten the cable once more to the mast just above mounting bracket.

To The Wall:

1. Use P-Clip to secure cable to the wall and for directing it to a point where it has to be thrown down. Make sure of the following things:
   a. Use correct size of clips.
   b. Small clips can crush or flatten the cable.
   c. Keep the nail part of the clip to one side of the cable.
   d. The distance between two clips should be approximately a meter.
2. Ensure correct bend radius. Turns should never be angled sharply, always form an 'Arc' wherever required. The head of the hammer can be used as a reliable guide for minimum bend radius.
3. While directing the cable over the edge of a wall, give a 'C' loop to the cable using clips so that it doesn't touch the edge at all. This is known as External Bend.
4. While taking the cable through an internal corner of a wall, bend it in an arc shape. This is known Internal Bend.
5. Give a Drip Loop to the cable wherever it enters the house. This helps in preventing the rain water entry into the house through cable.

Cable Routing from Antenna to Receiver

The cabling should be done in a way so that the shortest possible route is followed to run the cable from the antenna assembly to the receiver. Make sure that the cable is not kinked or pinched in entire route to prevent any damage. An easy way is to install the receiver box near any outside wall inside the premises. Then pass the cable through a nearby opening like window. If there is no opening then drill a hole in the wall after taking permission from the customer.

Make sure to seal the drilled hole with silicon or weather proof sealing material after completion of the installation. Secure the cable on the wall by using clamps or clips.

After completion of the cabling inside the premises attach the cable with receiver (STB).

4.3.3 Performing Right Cable Connections

To complete the connections, the steps are broadly categorised in two parts. The following figure shows the connections that need to be done to complete the installation of DTH:

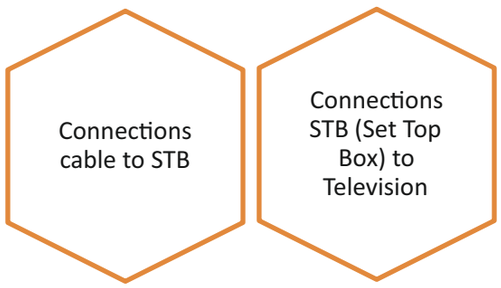


Fig. 4.3.1: Connections need to be done while DTH installation

Connections Cable to STB

Connect RGG connector to the IF input jack of Set Top Box.

Connections STB to Television

Connect the audio video connector of the cable to the respective audio video jacks in the rear side of the STB using the RGV cables. The red connector will go to red jack, yellow to yellow and white connector will connect to white jack.

The other end will be connected to the television jacks. It also has the same color code. The red connector will go to red jack, yellow to yellow and white connector will connect to wh ite jack. Ensure that the connectors are plugged in to Audio-Video 1 port and not the Audio-Video 2.

Important Safety Instructions

It is imperative to read and follow all the instructions carefully during installation of various components. Always keep a copy of the manual readily available in time of need. Some other considerations are:

1. Always wear personal protective equipment while performing the installation.
2. Do not use any of the components near water.
3. Clean the dirt, oil or any unwanted particles using a dry cloth.
4. Make sure that the ventilation ports are not blocked. Follow the installation manual while performing the installation.
5. Ensure that the setup is not installed near any source of heat such as generators, AC compressor, oven/stove or any sou rce which produces heat or any type of radiation.
6. Make sure that the power chord is secured on the wall using clips so that it can be prevented from any pinch or bend. Secure the ends of the cable as well.

7. Components should not be installed if they are in damaged condition, such as:
    - The power supply chord or the plug is damaged.
    - The apparatus is affected by liquid spillage or any other contaminant that can harm the circuit or working of the apparatus.
    - The dish antenna is exposed to rain or moisture which resulted damaged surface of the antenna.
    - Damaged by any mishandling or broken component.
    - Any source of heat is near the set top box.
    - Objects which are heavy or contain any liquid place over the components can damage the STB.

The following image shows some safety precautions to be followed while installing the DTH:

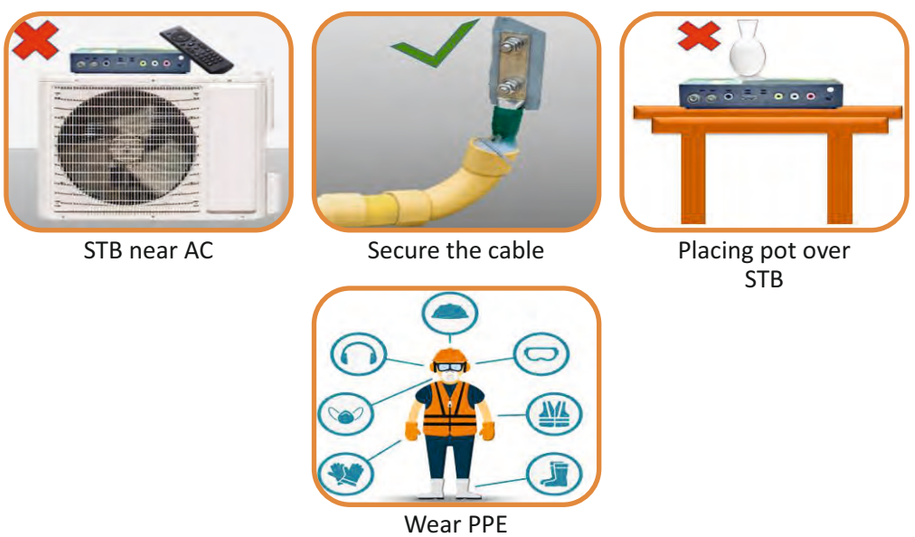


Fig. 4.3.2: Safety instructions to be followed while installing DTH

Some safety tips that need to be followed are:

- Make sure the STB is unplugged before performing any cleaning operation.
- Make sure that the STB receiver cabinet is properly ventilated, do not cover the receiver also keep it away from other electronic devices.
- Use the power source as per the manufacturer's instruction.
- To unplug the power chord always grip the power plug and not pull the chord. Avoid any overloading of extension cords.
- Do not insert sharp objects such as tester screws or knife into the receiver cabinet, this could damage the interior circuit or cause any hazard like short circuit or electrocution.
- Make sure that the antenna is not installed near any overhead tank or near any light or power circuit. Make sure no high power lines are passing near the installed antenna assembly.

- For providing the power make sure that the socket contains a ground connection to protect from any electrical faults. Unplug the power chord when is not used for longer times or any weather condition such as heavy rain or thunder. This will protect the apparatus from any damage caused due to the lightning or power line surges.

Precautionary Measures

As all the other electronic devices are earthed for safety, the antenna, mast and mount assembly should be earthed. As per the local electrical regulations the electrical components and the cable should be grounded for safety. This would protect the equipment's as well as any hazard causing from the electrical failure or disturbance.

The following figure shows some other points that need to be considered while installing DTH:

Avoid installation process to be carried out in stormy or rainy weather. As the safety of the technician is the prime importance of the company.

Never work on unsafe site like a site near high electric wires, unsafe roof structure, and slippery conditions.

Make sure that there is no electrical and water pipelines are running near the location for installing the dish. Check the stability of the structure or roof before climbing over.

Never install the antenna assembly where it is blocked or can be easily reached by people, animal or vehicles.

Make sure that the antenna is installed where wind does not affect the positioning of the dish antenna.

Avoid installing the dish antenna assembly on vinyl or aluminium siding. As the structures made from these materials are weak to hold or provide firm and strong base to support antenna assembly.

Never mount the antenna assembly on a tree or such kind of structures which are unstable.

Fig. 4.3.3: Safety points to be considered while installing DTH

Activity 

Write the three steps process involved in dish positioning.

1. _____
2. _____
3. _____

List 5 safety steps while mounting a dish antenna:

1. _____
2. _____
3. _____
4. _____
5. _____

Practical

Perform cable connection between a STB and a television set using the given cables.

- RGV cable
- HDMI cable
- Power cable

UNIT 4.4: Basic Troubleshooting of DTH

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the basic faults in DTH set up
2. Understand the cause and correction methods involved

4.4.1 Basic Faults

There are several reasons which can cause faults or issues such as no signal or blank screen. These issues can be rectified by following some basic steps. For fault rectification, the user manual or manual provided by the company can be used to correct the issue.

For troubleshooting the set up and rectification following steps need to be performed:

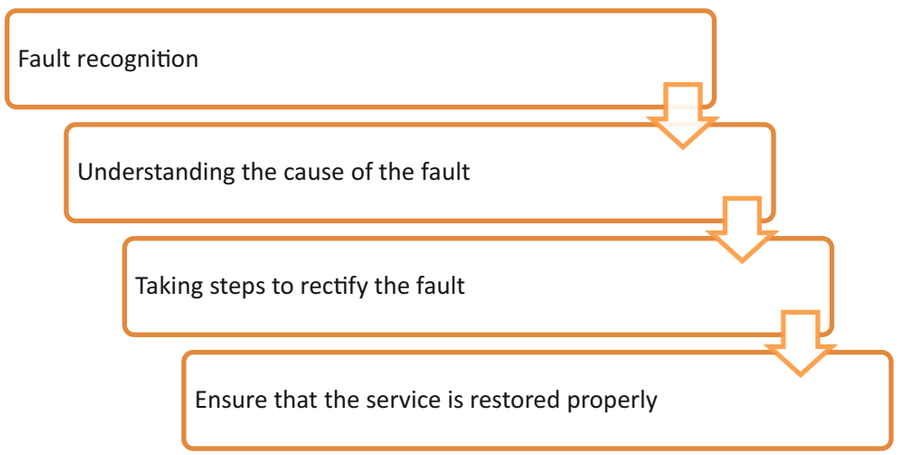


Fig. 4.4.1: Steps involved in fault rectification and correction

The faults may be caused because of a technical or non-technical issue and hence the service gets interrupted. For recognition of the fault, communicate properly with the customer to understand the issues.

Document all the information and look for the possible reasons which may be the cause of the fault. Refer to the manuals or take assistance of you senior if needed. The issue should be resolved as soon as possible to resume uninterrupted service to the customer.

The following figure shows some basic error messaged, cause related to it and corrective action to be taken to resolve the issue:

Problem	Possible cause	Corrective actions
Partial or complete signal loss	Receiver or STB is not receiving the signal properly	1. Check the RF cable 2. Check the wall outlet 3. Check the dish positioning
	Loose/disconnected cables	1. Check for cable damage along the line 2. Check the connections of cable
	Locked receiver	1. Contact customer support to perform QAM (quadrature amplitude modulation) scan
	Damaged connector/cable	1. Replace the cable 2. Replace the connectors
	Damaged receiver/STB	1. Check the receiver 2. Replace the receiver/STB
No Signal message	Issue between the satellite signal and receiver	1. Check cable connections 2. Check the receiver
	No power to the receiver/STB	1. Check the power supply 2. Check the power cable to receiver/STB
	Loose cable connections	1. Check the cable connections 2. Make all connections secure and tight
	TV plugged to wrong input	1. Check the TV and receiver cable connection
	Damaged TV input port	1. Replace or repair the TV input port
	Damaged input cable	1. Replace the cables
	Damaged receiver/STB	1. Repair or replace the receiver/STB

Problem	Possible cause	Corrective actions
Remote control malfunction	Damaged remote control	1. Replace the remote
	Dead battery	1. Replace the battery
	Incorrectly installed battery	1. Place the battery correctly
Few controls are not working	Faulty remote control	1. Replace the remote
	Wrong codes on remote	1. Replace the remote chip
Distorted video	Damaged TV set	1. Get the TV repaired or replaced
	Low signal strength	1. Get the dish aligned properly for good signal strength

Fig. 4.4.2: Basic error messages

Activity

Write down the cause of the following faults.

1. No signal

   _____

2. Remote control not working

   _____

3. Partial Signal

   _____

4. Distorted video

   _____

Practical

Perform troubleshooting to fix the issue in a DTH in which shows the signal strength as weak.

Equipment:

- Sat meter/Sat finder
- Tool box
- Safety equipment's

(Hint: The low signal issue may arise due to network issue between satellite and dish antenna)

Practical

Perform troubleshooting of a DTH set up in which the video output shows the No signal message.

Equipment:

- Tester
- Multimeter
- Safety equipment's

(Hint: The No signal issue may arise due to cable issue in the DTH set up.)

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5. Personal and Professional Skills

Unit 5.1 – Communication Skills

Unit 5.2 – Listening Skills

Unit 5.3 – Workplace Ethics

Unit 5.4 – Documentation Skills

ELE/N9951

Key Learning Outcomes

At the end of this module, you will be able to:

1. Use appropriate language for communication
2. Make the best impression
3. Identify the aspects of suing correct body language
4. Explain the do and don'ts at work place

UNIT 5.1: Communication Skills

Unit Objectives

At the end of this unit, you will be able to:

1. Communicate properly with customers and colleagues
2. Identify key principles for communication at work area

5.1.1 What is Communication?

Learning basic communication skills helps in identifying and using different types of words and vocabulary and also improve reading comprehension.

Communication is the process of transferring signals/messages between a sender and a receiver through various methods (written words, nonverbal cues and spoken words). It is also the mechanism used to establish and modify relationships. It is majorly categorised in two parts. The following figure shows the types of communications:

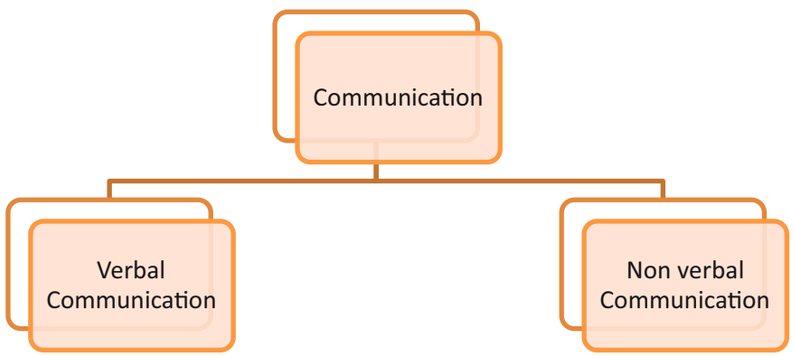


Fig 5.1.1: Types of communication

5.1.2 Verbal Communication

Verbal communication is the ability to convey information to another person effectively and efficiently with good verbal skills to help facilitate the sharing of information between people. The verbal communication is affected by various factors. The following figure shows the factors that affect the verbal communication:

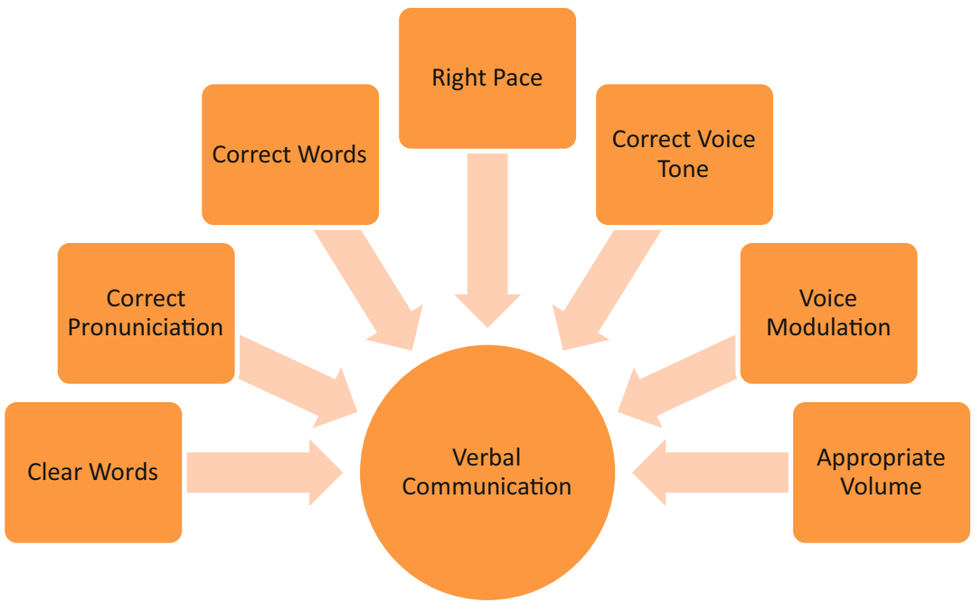


Fig 5.1.2: Factors affecting verbal communication

Clear words

While communicating with customer or colleagues pronounce the word clearly and don't mumble. This will help the other person to clearly listen and understand the information that is being provided.

Correct pronunciation

Using correct word is very important to provide right information while communicating also right pronunciation is very important. The other person should be able to clearly understand the words, so right tone and right accent should be used. Refer to dictionary for right pronunciation of a word.

Correct words

Make sure that the words used for communication are correct. Using words w ith unclear meaning would result incorrect transfer of the information. Learn new words and use the words in daily conversation to increase vocabulary.

Right pace

Using the right pace while communicating is very important. Make sure not to speak too fast or too slow. Use a pace which makes the other person to listen and to understand what is being said.

Correct voice tone

Voice tone should be correct as per the environment. For example, while communicating in a crowded area with group of people, use a little high tone and while communicating with single person a quiet place use a light tone. Make sure that the tone does not sound aggressive or under confident.

Voice modulation

A monotonous voice sounds boring and the person listening does not take any interest. So modulation of voice is very important while communicating. To emphasize on some points use a little high tone and use light tone in general communication.

Appropriate volume

The volume should change according to the situation. Speak softly with heavy voice to make the communication effectively. Use a tone which sound confident and clear.

Know what is being spoken

Be confident in speaking and communicating and this confidence will come with complete knowledge. It is very important to collect all the information and know the whereabouts of the topic of conversation. Then the communication will become more effective. Also if there is no information about a topic accept this rather communicating with made up information. This will give a bad impact over the person being communicating with.

Practice

Communication skills can be improved by practicing more and more and increasing the vocabulary. Interact more and use the knowledge and skill to enhance competency. Be confident and spend more time in practice and gaining knowledge.

5.1.3 Non-verbal Communication

Non-verbal communications such as body posture, hand movements also plays an important role in communication. Most of the part that is not clear with the words are clearly understood by other means.

The following figure shows the factors affecting non -verbal communication:

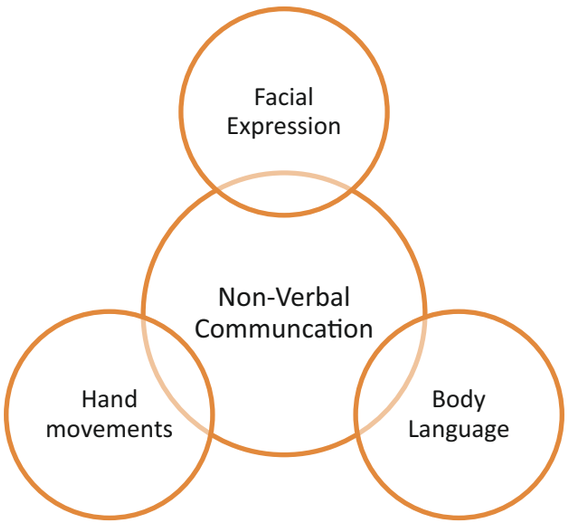


Fig 5.1.3: Factors affecting non-verbal communication

Facial expression

While communicating the most important part of body where the whole concentration of the speaker and the listener stays is the face. So the facial expressions says a lot. Always have a pleasant smile on the face while communicating. Facial expressions justify the words. Make sure to maintain proper eye contact with other person. Facial expression sh ould not be aggressive or dull as this will make the other person to lose interest in communication.

Hand Movements

Avoid too much hand movement while communicating as this shows lack of confidence and the other person may feel offensive when there is too much hand movement. Hold your hands together in front of your body firmly. A little hand movement makes the communication more effective. The following should be avoided while communicating:

- Crossing your Hands

- Moving your hands here and there too much

- Pointing with your Hands

- Placing your hands stiff behind yourself or by your sides

Body Language

This is another means of non-verbal communications method in which the thoughts and information is shared by physical behaviour such as body posture, gestures, eye movement and touch. As the body language justifies the words, this creates a major impact on the listener while communicating. To improve the body language while communicating, practice and keep in mind few points to improve the body language.

Body language includes all body posture, movement of body parts, dressing sense, using the space around. This all helps the listener understand how confident the speaker is and the impact of the words increases as body gesture goes with the words.

Body language plays an essential role in communicating with people. Body language comprises of the gestures and movements that is made of the different parts of body when communicating with people. Many a times, body language speaks more than words. Certainly, the body language must be in synch with the words.

The following figure shows the points to remember while communicating:

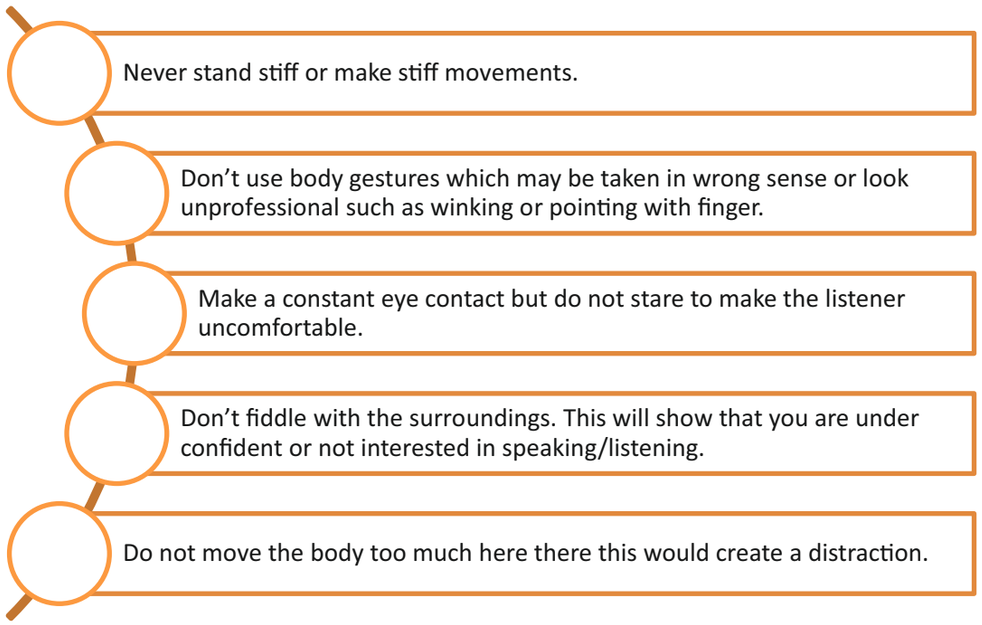


Fig 5.1.4: Points to be considered while communicating

Example of negative body language: Biting nails show that you are not confi dent, resting hands on your waist shows you are aggressive, nodding your head shoes you agree or disagree.

Signs of a positive body gesture

A positive body gestures shows that you are confident, attentive and you are providing right information. This also shows that you are active in communication and creates a good impression on other participants in the communication. These gestures include:

- Walking upright
- Confident hand shake
- Pleasant smile on face
- Nodding head while listening
- Steady eye contact

Signs of a negative body gesture

A negative body gesture shows lack of confidence and restlessness. This will make other participants in the communication loose interest. This type of gestures should be avoided during a meeting.

These gestures include:

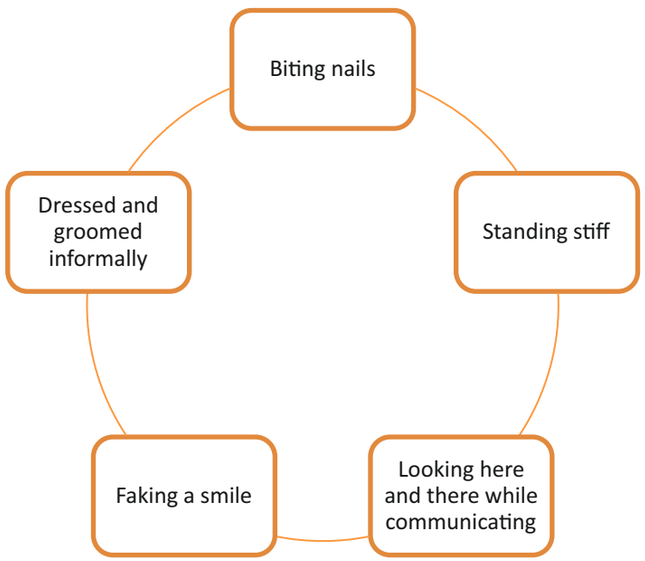


Fig 5.1.5: Gestures

The following image shows a technician with a good body language and pleasant personality:

Fig 5.1.6: A technician offering handshake with a smile on face.

Dos and Don’ts while Communicating

The following table shows the dos and don’ts while communicating with colleagues, senior or client:

	Dos	**Don’ts**
Facial Expression	Keep a calm, concerned, and Interested facial expression.	Roll your scowl, eyes or look bored.
Eye Contact	Maintain a healthy level of eye contact.	Stare too much, you might come off as creepy. But avoid looking down or darting your eyes too quickly as this can be a sign of uneasiness.
Hand and arms position	Keep your arms at your sides, with your hands open.	Clench your fists, fold your arms or point fingers.
Stand	Maintain an upright and open posture.	Slouch or stand too close that you are invading the customer's personal space.

Fig 5.1.7: Dos and don’ts of communication

Unit 5.2: Listening Skills

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the difference between hearing and listening
2. Describe the importance of listening skills
3. Identify the steps to be good listener

5.2.1 Define Hearing and Listening

Listening is a very important part of communication. Without listening carefully and understanding what is said, communication cannot be carried out effectively. It involves hearing the information and then understanding what is being said by the speaker. Effective listening completes when you get and understand the right information given by the speaker. Then you respond accordingly on that basis.

There is a difference between hearing and listening. The following figure shows the basic difference between hearing and listening:

Hearning	Listening
•It is a physical act •Hearing acknowledge sound •It is an involunty physiological process •Person does not have to think	•Listening is an intellectual and emotional act •It acknowledge understanding •It is a voluntry physiological process •Person have to hink and undrestand

Fig 5.2.1: Basic difference between hearing and listening

5.2.2 Importance of Listening Skills

Listening skill is a skill that needs to be learned for better understanding. A good listener can be a good speaker. So, listening is the prior skill that need to be learned and adapted. As a technician you should actively listen to the customer issues to understand the problem. Active listening would help you to understand the cause of any issue and you would be able to rectify the fault in less time to make customer satisfied. Listening would help you in:

- Communication
- Taking control of a situation
- Reducing confusion and arguments

Active listener creates a positive impression on the speaker. It shows that the listener:

- Care about the other person
- Respect the other person

For active listening you should consider few points in mind. This would help you understand the issue and take the necessary steps based on that information. The following figure shows the points that need to be considered for active listening:

Fig 5.2.1: Active listening considerations

Avoid Distractions

Try to focus on what speaker is saying. Do not start doing another work like looking into files or other things to avoid unnecessary interruptions. Don't get distracted by other means like other sound or activity.

Avoid any personal issues. Be impartial while considering and listening to others thoughts. People have different way of speaking. Just focus on what is being said without considering any other factor.

Try to listen to the speaker. Do not just consider words. Words with facial expr ession, body gesture like factors would help you understand the issue discussed by the speaker.

Prepare to listen

Relax and focus on the speaker, make eye contact. Remove any other thought from your mind. Stand or sit relaxed, be attentive and make sure yo u hear properly and there is no distraction or noise. Focus on what speaker says and understand.

Stop talking or speaking when another person is talking. Avoid interrupting and just focus on what is being said. This would help you to understand what speake r is saying.

Comfort the speaker

Give a smiling face to the speaker. Make the speaker comfortable and feel free to express his/her thoughts. Nod your head in response to what you listen. This shows that you are interested and attentive towards listenin g. Maintain eye contact and do not move body parts here and there.

Try to understand the point of view of the speaker. Put yourself in the speaker's shoes. Consider the issues from their perspective. Avoid considering any previous thoughts. Take everything with an open mind. If you disagree with the speaker wait and construct your thoughts, then speak in a very firm tone with respect to their thoughts.

Be patient

Make sure that the speaker finishes, do not interrupt the speaker in middle. Let the speaker take time to complete the communication. Encourage the speaker to let finish.

Listen to the tone, pitch and volume of the speaker. This will help you understand which part the speaker is more focusing, and which part is normal.

Features of a good listener:

All the verbal and non-verbal both type of communication would help in listening and understanding the issue. There are some basic features that a good listener should possess. The following is an image that shows features of an active listener:

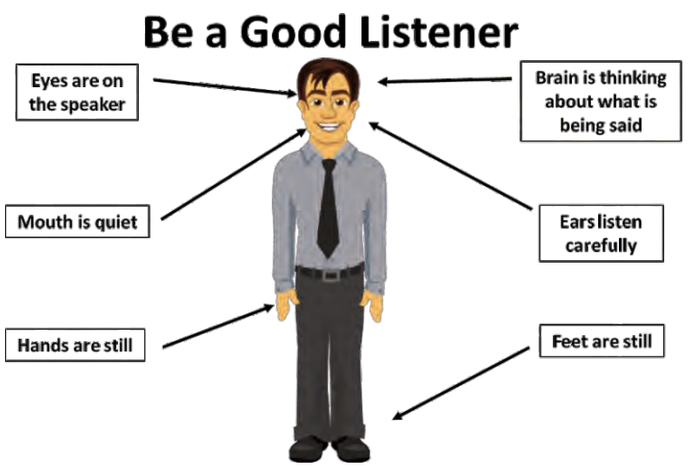


Fig 5.2.2: Good listener's features

UNIT 5.3: Workplace Ethics

Unit Objectives

At the end of this unit, you will be able to:

1. Explain the importance of corporate etiquette
2. Identify the dos and don'ts at workplace
3. Describe time management skills

5.3.1 Workplace Etiquette

The set of rules that an individual need to follow while working in an organisation are known as workplace etiquette. These rules may not be written in any document form but they are primary roles and responsibility that comes over an individual from the day he/she joins the organisation. These rules and regulations helps to maintain the decorum of the organisation.

A technician spends most of the time in field, at customer site and rest in the office. So it is very important for the technician to follow the basic etiquette.

Workplace etiquette refers to the sensible and appropriate behaviour followed by an employee with co-workers to create a god impression. The workplace is an environment where you need to follow some rules and regulation to maintain the decorum of the organisation. The behaviour at workplace and home are completely different. At workplace you need to be professional and organised.

Some do's and don'ts to be followed at workplace:

- Do not waste your and your customer's time. Perform the installation/service as quickly as possible but do not hurry to make the customer uncomfortable.
- Do not disturb the customer. Confirm appointment and inform before reaching the customers site. Knock and enter the customer premises after customer's approval and respect their privacy.
- Put your mobile phones in silent mode and avoid taking unnecessary calls. If possible talk outside and in low volume.
- Do not access areas and belongings of customer/colleagues without taking their permission.
- While sneezing or coughing cover your mouth and use a handkerchief or tissue preferably.
- Eating drinking in front of the customer on site during working hours is not a professional way of working.
- Keep the site clean after installation and restore the workplace as per customer's request.
- Do not use foul language or argue with your customer/colleague. Discuss any issue with the customer quietly.
- Use proper tone and words while talking at the workplace with customer/colleague.

- Note down the important point discussed in a meeting and use your own pen and paper for this. Discuss the issue in the end of the meeting.
- Pass correct and necessary information to the customer/colleagues following organisations policies.
- Reach the customer site or office on time. Follow the rules and regulations of your organisation. Maintain discipline at the workplace.
- Dress up well and get groomed. Avoid wearing flashy heavy ornaments and strong perfumes.
- Show respect and gratitude to customer/colleagues and help them in understanding in case of any doubt.
- Do not share confidential data with other parties who are not related to the organisation.
- Use the tools equipment's provided by the company. Get the tools from tool store after taking permission and return the same after completion of your work.
- Ensure to keep your belongings before leaving customer premises and do not take any of the customers belonging with yourself.
- Avoid personal talks and personal work during working hours.
- Do not drink or smoke at workplace.

Visits

Dos	Don'ts
Inform the customer before arriving the site for installation/service.	Reach the site without informing the customer.
Enter the customer premises after taking permission.	Enter private areas without taking customers permission.

Appearance

Dos	Don'ts
Wear clean clothes and appear professional.	Appear casual and shabby.
Be groomed.	Eat tobacco or drink alcohol during work.

Character

Dos	Don'ts
Be honest - Admit if you made a mistake and apologize.	Make excuses when you are asked to explain your action.
Be dependable - When your colleague or supervisor assigns you work, do it.	Let personal life affect work.
Be loyal -Speak good things about your colleague, supervisor and workplace.	Postpone.
Be enthusiastic and open to learning - Always accept changes and adapt to them. Always be willing to learn new work.	Sulk or become negative when asked to do additional work.

Attitude

Dos	Don'ts
Be positive always.	Take feedback personally or negatively.
Take your work seriously.	Spend time worrying unnecessarily.

Organisation Skills

Dos	Don'ts
Organizes, plan and save time.	Waste time.
Arrange and check all equipment required for your work before going to the site.	Miss your deadlines.
Schedule your task and manage time and work effectively.	Delegate work all the time.
Function effectively as both leader and team player.	Fail to do the designated work
Priorities your work.	Spend time on work that is not important.

Communication Skills

Dos	Don'ts
Express your views using the right words and tone.	Be rude.
Question if you do not understand something about work.	Be shy and quiet.
Explain your work related matters clearly and patiently to others.	Lose your temper if somebody does not understand you or questions you about something.
Be a good listener than a speaker.	Use informal language or slangs at workplace.

Cooperation Skills

Dos	Don'ts
Offer help to others and work in harmony.	Take more work than you can do .
Focus on work completion.	Try to complete all the work yourself.

UNIT 5.4: Documentation

Unit Objectives

At the end of this unit, you will be able to:

1. Explain the importance of corporate etiquette
2. Identify the dos and don'ts at workplace
3. Describe time management skills

5.4.1 Documentation in DTH Installation/Service

Documentation is a process in which all the records, details from customer request for installation/service of the equipment to the completion of the process is recorded and maintained for future reference. It involves basic customer details, comp lain and service records and customer feedback.

Every organisation has their own set of policies for documentation involved in various steps of service provided. The following figure shows various steps in which documentation is involved:

Fig 5.4.1: Different stages in an organisation which involves documentation

Documentation is very important as it helps manages the organisation workflow and the records can be retrieved for future reference to track down service records. The documentation should be done in a format specified by the organisation. It is a part of one's job role to complete all the work-related document on time and submit these documents to the concerned authority as well.

The following figure shows the importance of documentation in an organisation:

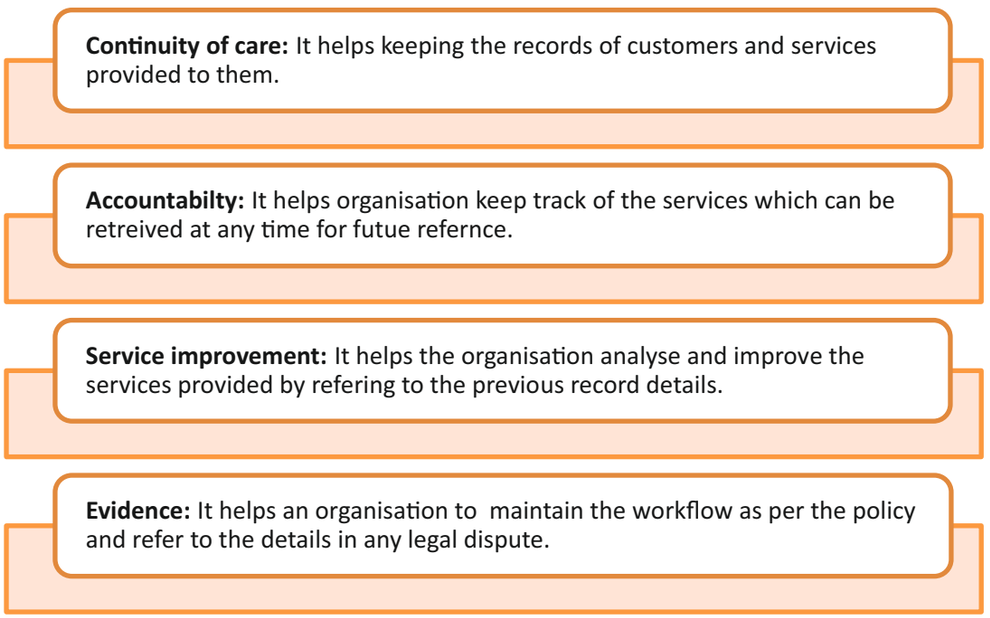


Fig 5.4.2: Importance of documentation

The technician needs to collect all the documents related to the job role such as:

- Reference manual
- Customer complain copy
- Customer bill copy
- Feedback form

The first step a technician should follow is to take the documents form the customer such as customer order copy, then match the details with the copy provided by the head office. After completing the service/installation document the details of the steps performed and end status of the service. Take the signature of the customer on bill copy and feedback form.

After completing all the documentation, the technician should submit the document to the concerned authority. Customer bill copy should be handed to the customer. Feedback form and service detail document should be submitted to the supervisor.

In case of any issue which is not resolved in the field, fill the detail of the issue and submit the detail to the supervisor to get the issue resolved in time.

Follow companies' policies and organisation structure to escalate any issue to higher authorities.

5.4.2 Documents Involved in Job Role

Some documents to be filled by the technician are job sheets and invoices. The following figure shows the type of documents involved in DTH service technician job role:

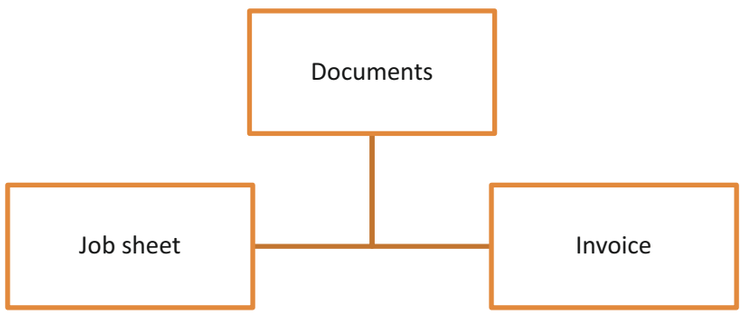


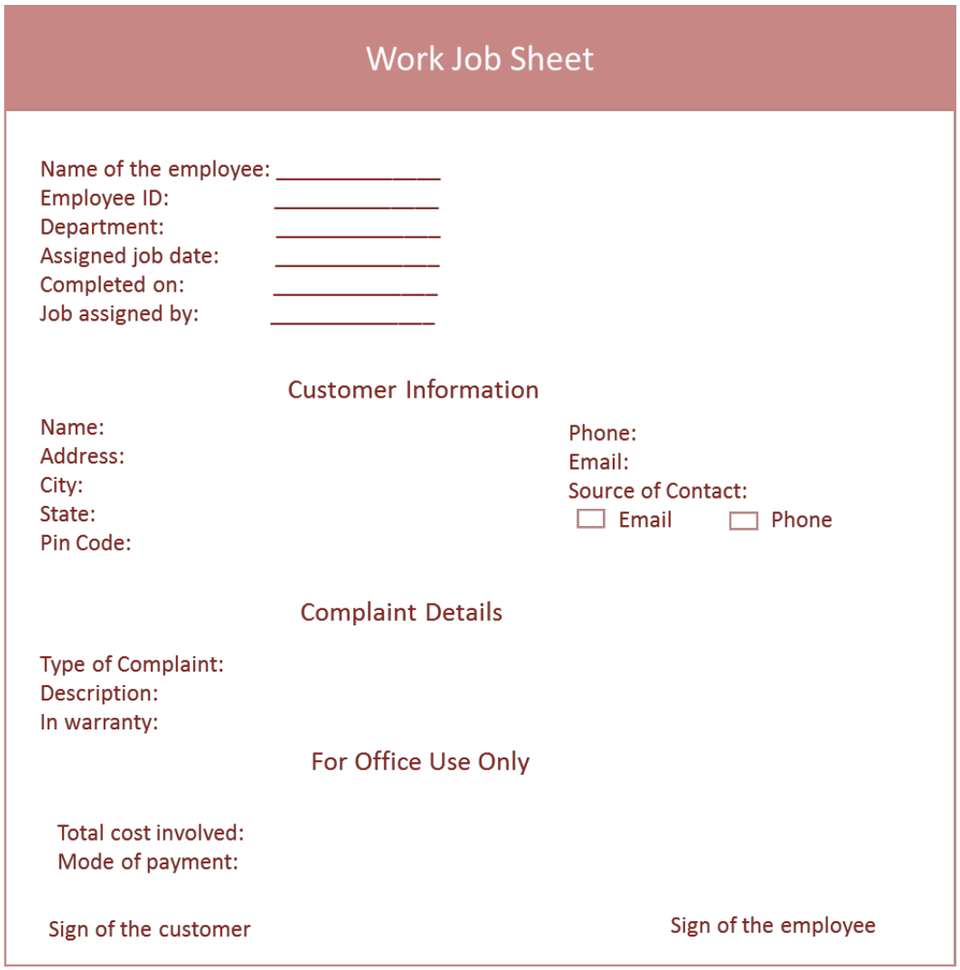
Fig 5.4.1: Types of documentation in DTH service technician job

A job sheet is a document prepared by a senior at a workplace, typically a supervisor, for the technicians to fill each time they undertake a task (a job, such as servicing or installing a new DTH device). Job sheets serve the purpose of storing records for later reference as well as act as a proof of the job completed along with the effectiveness and efficiency with which it was completed.

A job sheet has various fields/columns that correspond to the description of the job such as when was the job assigned, what is the customer name, address and phone number, is the product under warranty, was the job completed on time, who was assigned the job, customer signature and other such fields.

A technician needs to, therefore, possess certain writing skills to ensure that the documents are filled correctly and legitimately. The technician's handwriting needs to be clear and easily readable by the customers as well as the supervisors. More over, the technician should be able to read and then rightfully fill the information in the specific fields.

The following figure shows a sample of a job sheet that a field technician is required to fill for every job assigned to them:



Work Job Sheet

Name of the employee: _____
Employee ID: _____
Department: _____
Assigned job date: _____
Completed on: _____
Job assigned by: _____

Customer Information

Name:
Address:
City:
State:
Pin Code:

Phone:
Email:
Source of Contact:
☐ Email ☐ Phone

Complaint Details

Type of Complaint:
Description:
In warranty:

For Office Use Only

Total cost involved:
Mode of payment:

Sign of the customer

Sign of the employee

Fig. 5.4.2: A sample job sheet

Though an invoice is generally system generated with a sale of a product, but sometimes, a technician may be required to fill few fields in the invoice at customer site depending on the circumstances. For example, in case of a faulty cable, a field technician may have to carry a new part to replace and the invoice sheet for that part. But the invoice will be filled with the details only if the faulty part is beyond repair and the customer agrees to pay for the new part.

Invoice

ABC Company
XYZ city
9102993000
www.abc.domain.in

Name:
Address:
Phone:
Email:
City:
State:
Pin Code:

Product Description	Price	Quantity	Total

Authorised Signature

Customer Signature

Fig. 5.4.3: A sample invoice

In addition to other forms, a technician may also need to adhere and fill a checklist for a specific job/task. In order to fill the checklist, the technician should be able to read it correctly and then fill correct responses based on the task completed. Typically, a checklist is usually a Yes or No format where a technician has to simply tick the columns/fields. But sometimes, there may be few fields for which the technician may need to write small sentences or statements.

Activity 

Identify the documents that you need to submit to the customer after service/installation of DTH:

- Feedback form
- Bill copy/Invoice
- DTH handling manual
- Complain copy
- Service level agreement

Mention the columns that need to be filled in an invoice for replacing any faulty component in a DTH service:

1. _____
2. _____
3. _____

Practical

Fill the invoice form given below for replacement of a coaxial cable on a customer site:
(Hint: Fill the details of any of your co participant in the practical)

Invoice

ABC Company
XYZ city
9102993000
www.abc.domain.in

Name:
Address:
Phone:
Email:
City:
State:
Pin Code:

Product Description	Price	Quantity	Total

Authorised Signature

Customer Signature

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6. Employability & Entrepreneurship Skills

Key Learning Outcomes

At the end of this module, you will be able to:

1. Explain the meaning of health
2. List common health issues
3. Discuss tips to prevent common health issues
4. Explain the meaning of hygiene
5. Discuss the purpose of Swacch Bharat Abhiyan
6. Explain the meaning of habit
7. Discuss ways to set up a safe work environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Discuss motivation with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of entrepreneurs with achievement motivation
13. List the different factors that motivate you
14. Discuss the role of attitude in self-analysis
15. Discuss how to maintain a positive attitude
16. List your strengths and weaknesses
17. Discuss the qualities of honest people
18. Describe the importance of honesty in entrepreneurs
19. Discuss the elements of a strong work ethic
20. Discuss how to foster a good work ethic
21. List the characteristics of highly creative people
22. List the characteristics of highly innovative people
23. Discuss the benefits of time management
24. List the traits of effective time managers
25. Describe effective time management technique
26. Discuss the importance of anger management
27. Describe anger management strategies
28. Discuss tips for anger management
29. Discuss the causes of stress
30. Discuss the symptoms of stress
31. Discuss tips for stress management
32. Identify the basic parts of a computer
33. Identify the basic parts of a keyboard
34. Recall basic computer terminology
35. Recall the functions of basic computer keys
36. Discuss the main applications of MS Office
37. Discuss the benefits of Microsoft Outlook
38. Discuss the different types of e-commerce
39. List the benefits of e-commerce for retailers and customers
40. Discuss how the Digital India campaign will help boost e-commerce in India

41. Describe how you will sell a product or service on an e-commerce platform
42. Discuss the importance of saving money
43. Discuss the benefits of saving money
44. Discuss the main types of bank accounts
45. Describe the process of opening a bank account
46. Differentiate between fixed and variable costs
47. Describe the main types of investment options
48. Describe the different types of insurance products
49. Describe the different types of taxes
50. Discuss the uses of online banking
51. Discuss the main types of electronic funds transfers
52. Discuss the steps to prepare for an interview
53. Discuss the steps to create an effective Resume
54. Discuss the most frequently asked interview questions
55. Discuss how to answer the most frequently asked interview questions
56. Discuss basic workplace terminology
57. Discuss the concept of entrepreneurship
58. Discuss the importance of entrepreneurship
59. Describe the characteristics of an entrepreneur
60. Describe the different types of enterprises
61. List the qualities of an effective leader
62. Discuss the benefits of effective leadership
63. List the traits of an effective team
64. Discuss the importance of listening effectively
65. Discuss how to listen effectively
66. Discuss the importance of speaking effectively
67. Discuss how to speak effectively
68. Discuss how to solve problems
69. List important problem-solving traits
70. Discuss ways to assess problem solving skills
71. Discuss the importance of negotiation
72. Discuss how to negotiate
73. Discuss how to identify new business opportunities
74. Discuss how to identify business opportunities within your business
75. Explain the meaning of entrepreneur
76. Describe the different types of entrepreneurs
77. List the characteristics of entrepreneurs
78. Recall entrepreneur success stories
79. Discuss the entrepreneurial process
80. Describe the entrepreneurship ecosystem
81. Discuss the purpose of the Make in India campaign
82. Discuss key schemes to promote entrepreneurs

83. Discuss the relationship between entrepreneurship and risk appetite
84. Discuss the relationship between entrepreneurship and resilience
85. Describe the characteristics of a resilient entrepreneur
86. Discuss how to deal with failure
87. Discuss how market research is carried out
88. Describe the 4 Ps of marketing
89. Discuss the importance of idea generation
90. Recall basic business terminology
91. Discuss the need for CRM
92. Discuss the benefits of CRM
93. Discuss the need for networking
94. Discuss the benefits of networking
95. Discuss the importance of setting goals
96. Differentiate between short-term, medium-term and long-term goals
97. Discuss how to write a business plan
98. Explain the financial planning process
99. Discuss ways to manage your risk
100. Describe the procedure and formalities for applying for bank finance
101. Discuss how to manage your own enterprise
102. List important questions that every entrepreneur should ask before starting an enterprise

UNIT 6.1: Personal Strengths & Value Systems

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the meaning of health
2. List common health issues
3. Discuss tips to prevent common health issues
4. Explain the meaning of hygiene
5. Discuss the purpose of Swacch Bharat Abhiyan
6. Explain the meaning of habit
7. Discuss ways to set up a safe work environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Discuss motivation with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of entrepreneurs with achievement motivation
13. List the different factors that motivate you
14. Discuss the role of attitude in self-analysis
15. Discuss how to maintain a positive attitude
16. List your strengths and weaknesses
17. Discuss the qualities of honest people
18. Describe the importance of honesty in entrepreneurs
19. Discuss the elements of a strong work ethic
20. Discuss how to foster a good work ethic
21. List the characteristics of highly creative people
22. List the characteristics of highly innovative people
23. Discuss the benefits of time management
24. List the traits of effective time managers
25. Describe effective time management technique
26. Discuss the importance of anger management
27. Describe anger management strategies
28. Discuss tips for anger management
29. Discuss the causes of stress
30. Discuss the symptoms of stress
31. Discuss tips for stress management

6.1.1 Health, Habits, Hygiene: What is Health?

As per the World Health Organization (WHO), health is a "State of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." This means being healthy does not simply mean not being unhealthy – it also means you need to be at peace emotionally and feel fit physically. For example, you cannot say you are healthy simply because you do not have any physical ailments like a cold or cough. You also need to think about whether you are feeling calm, relaxed and happy.

Common Health Issues

Some common health issues are:

- Allergies
- Asthma
- Skin Disorders
- Depression and Anxiety
- Diabetes
- Cough, Cold, Sore Throat
- Difficulty Sleeping
- Obesity

6.1.1.1 Tips to Prevent Health Issues 

Taking measures to prevent ill health is always better than curing a disease or sickness. You can stay healthy by:

- Eating healthy foods like fruits, vegetables and nuts
- Cutting back on unhealthy and sugary foods
- Drinking enough water everyday
- Not smoking or drinking alcohol
- Exercising for at least 30 minutes a day, 4 -5 times a week
- Taking vaccinations when required
- Practicing yoga exercises and meditation

How many of these health standards do you follow? Tick the ones that apply to you.

1. Get minimum 7-8 hours of sleep every night. ☐
2. Avoid checking email first thing in the morning and right before you go to bed at night. ☐
3. Don't skip meals – eat regular meals at correct meal times. ☐
4. Read a little bit every single day. ☐
5. Eat more home cooked food than junk food. ☐
6. Stand more than you sit. ☐
7. Drink a glass of water first thing in the morning and have at least 8 glasses of water through the day. ☐
8. Go to the doctor and dentist for regular check-ups. ☐
9. Exercise for 30 minutes at least 5 days a week. ☐
10. Avoid consuming lots of aerated beverages. ☐

6.1.1.2 What is Hygiene?

As per the World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." In other words, hygiene means ensuring that you do whatever is required to keep your surroundings clean, so that you reduce the chances of spreading germs and diseases.

For instance, think about the kitchen in your home. Good hygiene means ensuring that the kitchen is always spick and span, the food is put away, dishes are washed, and dustbins are not overflowing with garbage. Doing all this will reduce the chances of attracting pests like rats or cockroaches, and prevent the growth of fungus and other bacteria, which could spread disease.

How many of these health standards do you follow? Tick the ones that apply to you.

1. Have a bath or shower every day with soap – and wash your hair with shampoo 2-3 times a week. ☐
2. Wear a fresh pair of clean undergarments every day. ☐
3. Brush your teeth in the morning and before going to bed. ☐
4. Cut your fingernails and toenails regularly. ☐
5. Wash your hands with soap after going to the toilet. ☐
6. Use an anti-perspirant deodorant on your underarms if you sweat a lot. ☐
7. Wash your hands with soap before cooking or eating. ☐
8. Stay home when you are sick, so other people don't catch what you have. ☐
9. Wash dirty clothes with laundry soap before wearing them again. ☐
10. Cover your nose with a tissue/your hand when coughing or sneezing. ☐

See how healthy and hygienic you are, by giving yourself 1 point for every ticked statement! Then take a look at what your score means.

Your Score

- **0-7/20:** You need to work a lot harder to stay fit and fine! Make it a point to practice good habits daily and see how much better you feel!
- **7-14/20:** Not bad, but there is scope for improvement! Try and add a few more good habits to your daily routine.
- **14-20/20:** Great job! Keep up the good work! Your body and mind thank you!

6.1.1.3 Swachh Bharat Abhiyan

We have already discussed the importance of following good hygiene and health practices for ourselves. But, it is not enough for us to be healthy and hygienic. We must also extend this standard to our homes, our immediate surroundings and to our country as a whole.

The 'Swachh Bharat Abhiyan' (Clean India Mission) launched by Prime Minister Shri Narendra Modi on 2nd October 2014, believes in doing exactly this. The aim of this mission is to clean the streets and roads of India and raise the overall level of cleanliness. Currently this mission covers 4,041 cities and towns across the country. Millions of our people have taken the pledge for a clean India. You should take the pledge too, and do everything possible to keep our country clean!

6.1.1.4 What are Habits?

A habit is a behaviour that is repeated frequently. All of us have good habits and bad habits. Keep in mind the phrase by John Dryden: "We first make our habits, and then our habits make us." This is why it is so important that you make good habits a way of life, and consciously avoid practicing bad habits.

Some good habits that you should make part of your daily routine are:

- Always having a positive attitude
- Making exercise a part of your daily routine
- Reading motivational and inspirational stories
- Smiling! Make it a habit to smile as often as possible
- Making time for family and friends
- Going to bed early and waking up early

Some bad habits that you should quit immediately are:

- Skipping breakfast
- Snacking frequently even when you are not hungry
- Eating too much fattening and sugary food
- Smoking, drinking alcohol and doing drugs
- Spending more money than you can afford
- Worrying about unimportant issues
- Staying up late and waking up late

Tips

- Following healthy and hygienic practices every day will make you feel good mentally and physically.
- Hygiene is two-thirds of health – so good hygiene will help you stay strong and healthy!

6.1.2: Safety: Tips to Design a Safe Workplace

Every employer is obligated to ensure that his workplace follows the highest possible safety protocol. When setting up a business, owners must make it a point to:

- Use ergonomically designed furniture and equipment to avoid stooping and twisting
- Provide mechanical aids to avoid lifting or carrying heavy objects
- Have protective equipment on hand for hazardous jobs
- Designate emergency exits and ensure they are easily accessible
- Set down health codes and ensure they are implemented
- Follow the practice of regular safety inspections in and around the workplace
- Ensure regular building inspections are conducted
- Get expert advice on workplace safety and follow it

6.1.2.1 Negotiable Employee Safety Habits

Every employer is obligated to ensure that his workplace follows the highest possible safety protocol. When setting up a business, owners must make it a point to:

- Immediately report unsafe conditions to a supervisor
- Recognize and report safety hazards that could lead to slips, trips and falls
- Report all injuries and accidents to a supervisor
- Wear the correct protective equipment when required
- Learn how to correctly use equipment provided for safety purposes
- Be aware of and avoid actions that could endanger other people
- Take rest breaks during the day and some time off from work during the week

Tips

- Be aware of what emergency number to call at the time of a workplace emergency
- Practice evacuation drills regularly to avoid chaotic evacuations

6.1.3 Self-Analysis – Attitude, Achievement Motivation

To truly achieve your full potential, you need to take a deep look inside yourself and find out what kind of person you really are. This attempt to understand your personality is known as self-analysis. Assessing yourself in this manner will help you grow, and will also help you to identify areas within yourself that need to be further developed, changed or eliminated. You can better understand yourself by taking a deep look at what motivates you, what your attitude is like, and what your strengths and weaknesses are.

6.1.3.1 What is Motivation?

Very simply put, motivation is your reason for acting or behaving in a certain manner. It is important to understand that not everyone is motivated by the same desires – people are motivated by many, many different things. We can understand this better by looking at Maslow's Hierarchy of Needs.

6.1.3.2 Maslow's Hierarchy of Needs

Famous American psychologist Abraham Maslow wanted to understand what motivat es people. He believed that people have five types of needs, ranging from very basic needs (called physiological needs) to more important needs that are required for self-growth (called self-actualization needs). Between the physiological and self-actualization needs are three other needs – safety needs, belongingness and love needs, and esteem needs.

These needs are usually shown as a pyramid with five levels and are known as Maslow's Hierarchy of Needs.

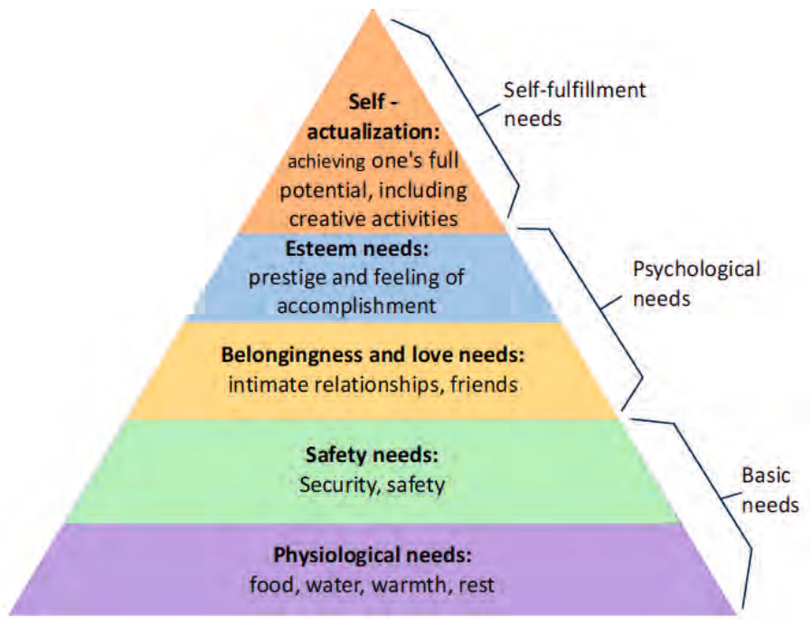

Fig. 6.1.1: Maslow's Hierarchy of Needs

The lowest level depicts the most basic needs. According to Maslow, our behaviour is driven by our basic needs, until those needs are fulfilled. Once they are fulfilled, we move to the next level and are motived by the next level of needs. Let's understand this better with an example.

Rupa comes from a very poor family. She never has enough food, water, warmth or rest. According to Maslow, until Rupa is sure that she will get these basic needs, she will not even think about the next level of needs – her safety needs. But, once Rupa is confident that her basic needs will be met, she will move to the next level, and her behaviour will then be motivated by her need for security and safety. Once these new needs are met, Rupa will once again move to the next level, and be motivated by her need for relationships and friends. Once this need is satisfied, Rupa will then focus on the fourth level of needs – her esteem needs, after which she will move up to the fifth and last level of needs – the desire to achieve her full potential.

6.1.3.3 Understanding Achievement Motivation

We now know that people are motivated by basic, psychological and self-fulfillment needs. However, certain people are also motivated by the achievement of highly challenging accomplishments. This is known as Achievement Motivation, or 'need for achievement'.

The level of motivation achievement in a person differs from individual to individual. It is important that entrepreneurs have a high level of achievement motivation – a deep desire to accomplish something important and unique. It is equally important that they hire people who are also highly motivated by challenges and success.

What Motivates You?

What are the things that really motivate you? List down five things that really motivate you. Remember to answer honestly!

I am motivated by:

Characteristics of Entrepreneurs with Achievement Motivation

Entrepreneurs with achievement motivation can be described as follows:

- Unafraid to take risks for personal accomplishm ent
- Love being challenged Future-oriented Flexible and adaptive
- Value negative feedback more than positive feedback
- Very persistent when it comes to achieving goals
- Extremely courageous
- Highly creative and innovative
- Restless - constantly looking to achieve more
- Feel personally responsible for solving problems

Think about it:

- How many of these traits do you have?
- Can you think of entrepreneurs who display these traits?

6.1.3.4 How to Cultivate a Positive Attitude?

The good news is attitude is a choice. So, it is possible to improve, control and change our attitude, if we decide we want to!

The following tips help foster a positive mindset:

- Remember that you control your attitude, not the other way around
- Devote at least 15 minutes a day towards reading, watching or listening to something positive
- Avoid negative people who only complain and stop complaining yourself
- Expand your vocabulary with positive words and delete negative phrases from your mind
- Be appreciative and focus on what's good in yourself, in your life, and in others
- Stop thinking of yourself as a victim and start being proactive
- Imagine yourself succeeding and achieving your goals

6.1.3.5 What is Attitude?

Now that we understand why motivation is so important for self-analysis, let's look at the role our attitude plays in better understanding ourselves. Attitude can be described as your tendency (positive or negative), to think and feel about someone or something. Attitude is the foundation for success in every aspect of life. Our attitude can be our best friend or our worst enemy. In other words:

"The only disability in life is a bad attitude."

When you start a business, you are sure to encounter a wide variety of emotions, from difficult times and failures to good times and successes. Your attitude is what will see you through the tough times and guide you towards success. Attitude is also infectious. It affects everyone around you, from your customers to your employees to your investors. A positive attitude helps build confidence in the workplace while a negative attitude is likely to result in the demotivation of your people.

6.1.3.6 What Are Your Strengths and Weaknesses?

Another way to analyse yourself is by honestly identifying your strengths and weaknesses. This will help you use your strengths to your best advantage and reduce your weaknesses. Note down all your strengths and weaknesses in the two columns below. Remember to be honest with yourself!

Strengths	Weaknesses

Tips

- Achievement motivation can be learned.
- Don't be afraid to make mistakes.
- Train yourself to finish what you start.
- Dream big.

6.1.4 Honesty & Work Ethics: What is Honesty?

Honesty is the quality of being fair and truthful. It means speaking and acting in a manner that inspires trust. A person who is described as honest is seen as truthful and sincere, and as someone who isn't deceitful or devious and doesn't steal or cheat. There are two dimensions of honesty – one is honesty in communication and the other is honesty in conduct.

Honesty is an extremely important trait because it results in peace of mind and builds relationships that are based on trust. Being dishonest, on the other hand, results in anxiety and leads to relationships full of distrust and conflict.

6.1.4.1 Qualities of Honest People

Honest individuals have certain distinct characteristics. Some common qualities among honest people are:

- They don't worry about what others think of them. They believe in being themselves – they don't bother about whether they are liked or disliked for their personalities.
- They stand up for their beliefs. They won't think twice about giving their honest opinion, even if they are aware that their point of view lies with the minority.
- They are think skinned. This means they are not affected by others judging them harshly for their honest opinions.
- They forge trusting, meaningful and healthy friendships. Honest people usually surround themselves with honest friends. They have faith that their friends will be truthful and upfront with them at all times.

They are trusted by their peers. They are seen as people who can be counted on for truthful and objective feedback and advice.

- **Honesty and employees:** When entrepreneurs build honest relationships with their employees, it leads to more transparency in the workplace, which results in higher work performance and better results.
- **Honesty and investors:** For entrepreneurs, being honest with investors means not only sharing strengths but also candidly disclosing current and potential weaknesses, problem areas and solution strategies. Keep in mind that investors have a lot of experience with startups and are aware that all new companies have problems. Claiming that everything is perfectly fine and running smoothly is a red flag for most investors.

- **Honesty with oneself:** The consequences of being dishonest with oneself can lead to dire results, especially in the case of entrepreneurs. For entrepreneurs to succeed, it is critical that they remain realistic about their situation at all times, and accurately judge every aspect of their enterprise for what it truly is.

6.1.4.2 Importance of Honesty in Entrepreneurs

One of the most important characteristics of entrepreneurs is honesty. W hen entrepreneurs are honest with their customers, employees and investors, it shows that they respect those that they work with. It is also important that entrepreneurs remain honest with themselves.

Let's look at how being honest would lead to great bene fits for entrepreneurs.

- **Honesty and customers:** When entrepreneurs are honest with their customers it leads to stronger relationships, which in turn results in business growth and a stronger customer network.

6.1.4.3 What are Work Ethics?

Being ethical in the workplace means displaying values like honesty, integrity and respect in all your decisions and communications. It means not displaying negative qualities like lying, cheating and stealing.

Workplace ethics play a big role in the profitability of a company. It is as crucial to an enterprise as high morale and teamwork. This is why most companies lay down specific workplace ethic guidelines that must compulsorily be followed by their employees. These guidelines are typically outlined in a company's employee handbook.

6.1.4.4 Elements of a Strong Work Ethic

An entrepreneur must display strong work ethics, as well as hire only those individuals who believe in and display the same level of ethical behavior in the workplace. Some elements of a strong work ethic are:

- **Professionalism:** This involves everything from how you present yourself in a corporate setting to the manner in which you treat others in the workplace.
- **Respectfulness:** This means remaining poised and diplomatic regardless of how stressful or volatile a situation is.
- **Dependability:** This means always keeping your word, whether it's arriving on time for a meeting or delivering work on time.
- **Dedication:** This means refusing to quit until the designated work is done, and completing the work at the highest possible level of excellence.
- **Determination:** This means embracing obstacles as challenges rather than letting them stop you, and pushing ahead with purpose and resilience to get the desired results.

- **Accountability:** This means taking responsibility for your actions and the consequences of your actions, and not making excuses for your mistakes.
- **Humility:** This means acknowledging everyone's efforts and had work, and sharing the credit for accomplishments.

6.1.4.5 How to Foster a Good Work Ethic?

As an entrepreneur, it is important that you clearly define the kind of behaviour that you expect from each and every team member in the workplace. You should make it clear that you expect employees to display positive work ethics like:

- **Honesty:** All work assigned to a person should be done with complete honesty, without any deceit or lies.
- **Good attitude:** All team members should be optimistic, energetic, and positive.
- **Reliability:** Employees should show up where they are supposed to be, when they are supposed to be there.
- **Good work habits:** Employees should always be well groomed, never use inappropriate language, conduct themselves professionally at all times and so on.
- **Initiative:** Doing the bare minimum is not enough. Every team member needs to be proactive and show initiative.
- **Trustworthiness:** Trust is non-negotiable. If an employee cannot be trusted, it's time to let that employee go.
- **Respect:** Employees need to respect the company, the law, their work, their colleagues and themselves.
- **Integrity:** Each and every team member should be completely ethical and must display above board behaviour at all times.
- **Efficiency:** Efficient employees help a company grow while inefficient employees result in a waste of time and resources.

Tips

- Don't get angry when someone tells you the truth and you don't like what you hear.
- Always be willing to accept responsibility for your mistakes.

6.1.5 Creativity & Innovation

What is Creativity?

Creativity means thinking outside the box. It means viewing things in new ways or from different perspectives, and then converting these ideas into reality. Creativity involves two parts: thinking and producing. Simply having an idea makes you imaginative, not creative. However, having an idea and acting on it makes you creativ e.

Characteristics of Highly Creative People

Some characteristics of creative people are:

- They are imaginative and playful
- They see issues from different angles
- They notice small details
- They have very little tolerance for boredom
- They detest rules and routine
- They love to daydream
- They are very curious

What is Innovation?

There are many different definitions of innovation. In simple terms, innovation means turning an idea into a solution that adds value. It can also mean adding value by implementing a new product, service or process, or significantly improving on an existing product, service or process.

Characteristics of Highly Innovative People

Some characteristics of highly innovative people are:

- They embrace doing things differently
- They don't believe in taking shortcuts
- They are not afraid to be unconventional
- They are highly proactive and persistent
- They are organized, cautious and risk-averse

Tips

- Take regular breaks from your creative work to recharge yourself and gain fresh perspective.
- Build prototypes frequently, test them out, get feedback, and make the required changes.

6.1.6 Time Management

Time management is the process organizing your time, and deciding how to allocate your time between different activities. Good time management is the difference between working smart (getting more done in less time) and working hard (working for more time to get more done).

Effective time management leads to an efficient work output, even when you are faced with tight deadlines and high pressure situations. On the other hand, not managing your time effectively results in inefficient output and increases stress and anxiety.

Benefits of Time Management

Time management can lead to huge benefits like:

- Greater productivity
- Higher efficiency
- Better professional reputation
- Reduced stress
- Higher chances for career advancement
- Greater opportunities to achieve goals

Not managing time effectively can result in undesirable consequences like:

- Missing deadlines
- Inefficient work output
- Substandard work quality
- Poor professional reputation
- Stalled career
- Increase in stress and anxiety

6.1.6.1 Traits of Effective Time Managers

Some traits of effective time managers are:

- They begin projects early
- They set daily objectives
- They modify plans if required, to achieve better results
- They are flexible and open-minded
- They inform people in advance if their help will be required
- They know how to say no
- They break tasks into steps with specific deadlines
- They continually review long term goals
- They think of alternate solutions if and when required
- They ask for help when required
- They create backup plans

6.1.6.2 Effective Time Management Techniques

You can manage your time better by putting into practice certain time management techniques. Some helpful tips are:

- **Plan out your day as well as plan for interruptions.** Give yourself at least 30 minutes to figure out your time plan. In your plan, schedule some time for interruptions.
- **Put up a "Do Not Disturb" sign** when you absolutely have to complete a certain amount of work.
- **Close your mind to all distractions.** Train yourself to ignore ringing phones, don't reply to chat messages and disconnect from social media sites.
- **Delegate your work.** This will not only help your work get done faster, but will also show you the unique skills and abilities of those around you.
- **Stop procrastinating.** Remind yourself that procrastination typically arises due to the fear of failure or the belief that you cannot do things as perfectly as you wish to do them.
- **Prioritize.** List each task to be completed in order of its urgency or importance level. Then focus on completing each task, one by one.
- **Maintain a log of your work activities.** Analyse the log to help you understand how efficient you are, and how much time is wasted every day.
- **Create time management goals** to reduce time wastage.

Tips

- Always complete the most important tasks first.
- Get at least 7 – 8 hours of sleep every day.
- Start your day early.
- Don't waste too much time on small, unimportant details.
- Set a time limit for every task that you will undertake.
- Give yourself some time to unwind between tasks.

6.1.7 Anger Management

Anger management is the process of:

1. Learning to recognize the signs that you, or someone else, is becoming angry
2. Taking the best course of action to calm down the situat ion in a positive way

Anger management does not mean suppressing anger.

Importance of Anger Management

Anger is a perfectly normal human emotion. In fact, when managed the right way, anger can be considered a healthy emotion. However, if it is not kept in check, anger can make us act inappropriately and can lead to us saying or doing things that we will likely later regret.

Extreme anger can:

- **Hurt you physically**: It leads to heart disease, diabetes, a weakened immune system, insomnia, and high blood pressure.
- **Hurt you mentally**: It can cloud your thinking and lead to stress, depression and mental health issues.
- **Hurt your career**: It can result in alienating your colleagues, bosses, clients and lead to the loss of respect.
- **Hurt your relationships**: It makes it hard for your family and friends to trust you, be honest with you and feel comfortable around you.

This is why anger management, or managing anger appropriately, is so important.

6.1.7.1 Anger Management Strategies

Here are some strategies that can help you control your anger:

Strategy 1: Relaxation

Something as simple as breathing deeply and looking at relaxing images works wonders in calming down angry feelings. Try this simple breathing exercise:

1. Take a deep breath from your diaphragm (don't breath e from your chest)
2. Visualize your breath coming up from your stomach
3. Keep repeating a calming word like 'relax' or 'take it easy' (remember to keep breathing deeply while repeating the word)
4. Picture a relaxing moment (this can be from your memory or your imagination)

Follow this relaxation technique daily, especially when you realize that you're starting to feel angry.

Strategy 2: Cognitive Restructuring

Cognitive restructuring means changing the manner in which you think. Anger can make you curse, swear, exaggerate and act very dramatically. When this happens, force yourself to replace your angry thoughts with more logical ones. For instance, instead of thinking 'Everything is ruined' change your mindset and tell yourself 'It's not the end of the world and getting angry won't solve this'.

Strategy 3: Problem Solving

Getting angry about a problem that you cannot control is a perfectly natural response. Sometimes, try as you may, there may not be a solution to the difficulty you are faced with. In such cases, stop focusing on solving the problem, and instead focus on handling and facing the problem. Remind yourself that you will do your best to deal with the situation, but that you will not blame yourself if you don't get the solution you desire.

Strategy 4: Better Communication

When you're angry, it is very easy to jump to inaccurate conclusions. In this case, you need to force yourself to stop reacting, and think carefully about what you want to say, before saying it. Avoid saying the first thing that enters your head. Force yourself to listen carefully to what the other person is saying. Then think about the conversation before responding.

Strategy 5: Changing Your Environment

If you find that your environment is the cause of your anger, try and give your self a break from your surroundings. Make an active decision to schedule some personal time for yourself, especially on days that are very hectic and stressful. Having even a brief amount of quiet or alone time is sure to help calm you down.

6.1.7.2 Tips for Anger Management

The following tips will help you keep your anger in check:

- Take some time to collect your thoughts before you speak out in anger.
- Express the reason for your anger in an assertive, but non-confrontational manner once you have calmed down.
- Do some form of physical exercise like running or walking briskly when you feel yourself getting angry.
- Make short breaks part of your daily routine, especially during days that are stressful.
- Focus on how to solve a problem that's making you angry, rather than focusing on the fact that the problem is making you angry.

6.1.8 Stress Management

We say we are 'stressed' when we feel overloaded and unsure of our ability to deal with the pressures placed on us. Anything that challenges or threatens our well-being can be defined as a stress. It is important to note that stress can be good and bad. While good stress keeps us going, negative stress undermines our mental and physical health. This is why it is so important to manage negative stress effectively.

Causes of Stress

Stress can be caused by internal and external factors.

Internal causes of stress

- Constant worry
- Rigid thinking
- Unrealistic expectations
- Pessimism
- Negative self-talk
- All in or all out attitude

External causes of stress

- Major life changes
- Difficulties with relationships
- Having too much to do
- Difficulties at work or in school
- Financial difficulties
- Worrying about one's children and/or family

6.1.8.1 Symptoms of Stress

Stress can manifest itself in numerous ways. Take a look at the cogniti ve, emotional, physical and behavioural symptoms of stress.

Cognitive Symptoms	Emotional Symptoms
• Memory problems • Concentration issues • Lack of judgement • Pessimism • Anxiety • Constant worrying	• Depression • Agitation • Irritability • Loneliness • Anxiety • Anger

Physical Symptoms	Behavioural Symptoms
• Aches and pain • Diarrhoea or constipation • Nausea • Dizziness • Chest pain and/or rapid heartbeat • Frequent cold or flu like feelings	• Increase or decrease in appetite • Over sleeping or not sleeping enough • Withdrawing socially • Ignoring responsibilities • Consumption of alcohol or cigarettes • Nervous habits like nail biting and pacing

6.1.8.2 Tips to Manage Stress

The following tips can help you manage your stress better:

- Note down the different ways in which you can handle th e various sources of your stress.
- Remember that you cannot control everything, but you can control how you respond.
- Discuss your feelings, opinions and beliefs rather than reacting angrily, defensively or passively.
- Practice relaxation techniques like meditation, yoga or tai chi when you start feeling stressed.
- Devote a part of your day towards exercise.
- Eat healthy foods like fruits and vegetables. Avoid unhealthy foods especially those containing large amounts of sugar.
- Plan your day so that you can manage your time better, with less stress.
- Say no to people and things when required.
- Schedule time to pursue your hobbies and interests.
- Ensure you get at least 7-8 hours of sleep.
- Reduce your caffeine intake.
- Increase the time spent with family and friends.

UNIT 6.2: Digital Literacy: A Recap

Unit Objectives

At the end of this unit, you will be able to:

1. Identify the basic parts of a computer
2. Identify the basic parts of a keyboard
3. Recall basic computer terminology
4. Recall the functions of basic computer keys
5. Discuss the main applications of MS Office
6. Discuss the benefits of Microsoft Outlook
7. Discuss the different types of e-commerce
8. List the benefits of e-commerce for retailers and customers
9. Discuss how the Digital India campaign will help boost e-commerce in India
10. Describe how you will sell a product or service on an e-commerce platform

6.2.1 Computer and Internet basics

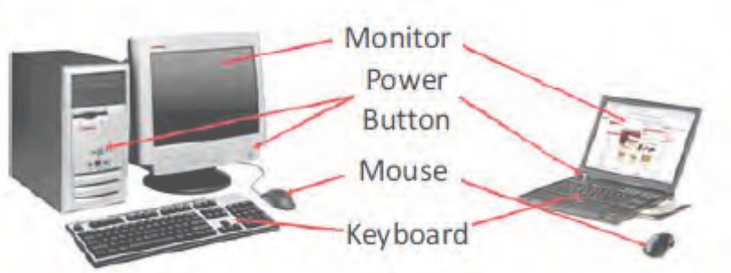

Fig.6.2.1. Parts of a Computer

Fig.6.2.2. Parts of a Keyboard

Basic Parts of a Computer

1. **Central Processing Unit (CPU):** The brain of the computer. It interprets and carries out program instructions.
2. **Hard Drive:** A device that stores large amounts of data.
3. **Monitor:** The device that contains the computer screen where the information is visually displayed.

4. **Desktop:** The first screen displayed after the operating system loads.
5. **Background:** The image that fills the background of the desktop.
6. **Mouse:** A hand-held device used to point to items on the monitor.
7. **Speakers:** Devices that enable you to hear sound from the computer.
8. **Printer:** A device that converts output from a computer into printed paper documents.
9. **Icon:** A small picture or image that visually represents something on your computer.
10. **Cursor:** An arrow which indicates where you are positioned on the screen.
11. **Program Menu:** A list of programs on your computer that can be accessed from the Start menu.
12. **Taskbar:** The horizontal bar at the bottom of the computer screen that lists applications that are currently in use.
13. **Recycle Bin:** A temporary storage for deleted files.

Basic Internet Terms

- **The Internet:** A vast, international collection of computer networks that transfers information.
- **The World Wide Web:** A system that lets you access information on the Internet.
- **Website:** A location on the World Wide Web (and Internet) that contains information about a specific topic.
- **Homepage:** Provides information about a website and directs you to other pages on that website.
- **Link/Hyperlink:** A highlighted or underlined icon, graphic, or text that takes you to another file or object.
- **Web Address/URL:** The address for a website.
- **Address Box:** A box in the browser window where you can type in a web address.

Basic Computer Keys

- **Arrow Keys:** Press these keys to move your cursor.
- **Space bar:** Adds a space.
- **Enter/Return:** Moves your cursor to a new line.
- **Shift:** Press this key if you want to type a capital letter or the upper symbol of a key.
- **Caps Lock:** Press this key if you want all the letters you type to be capital letters. Press it again to revert back to typing lowercase letters.
- **Backspace:** Deletes everything to the left of your cursor

Tips

- When visiting a .com address, there no need to type http://or even www. Just type the name of the website and then press Ctrl + Enter. (Example: Type 'apple' and press Ctrl + Enter to go to www.apple.com)
- Press the Ctrl key and press the + or - to increase and decrease the size of text.
- Press F5 or Ctrl + R to refresh or reload a web page.

6.2.2 MS Office and Email

About MS Office

MS Office or Microsoft Office is a suite of computer programs developed by Microsoft. Although meant for all users, it offers different versions that cater specifically to students, home users and business users. All the programs are compatible with both, Windows and Macintosh.

Most Popular Office Products

Some of the most popular and universally used MS Office applications are:

- **Microsoft Word**: Allows users to type text and add images to a document.
- **Microsoft Excel**: Allows users to enter data into a spreadsheet and create calculations and graphs.
- **Microsoft PowerPoint**: Allows users to add text, pictures and media and create slideshows and presentations.
- **Microsoft Outlook**: Allows users to send and receive email.
- **Microsoft OneNote**: Allows users to make drawings and notes with the feel of a pen on paper.
- **Microsoft Access**: Allows users to store data over many tables.

Why Choose Microsoft Outlook?

A popular email management choice especially in the workplace, Microsoft Outlook also includes an address book, notebook, web browser and calendar. Some major benefits of this program are:

- **Integrated search function**: You can use keywords to search for data across all Outlook programs.
- **Enhanced security**: Your email is safe from hackers, junk mail and phishing website email.
- **Email syncing**: Sync your mail with your calendar, contact list, notes in One Note and…your phone!
- **Offline access to email:** No Internet? No problem! Write emails offline and send them when you're connected again.

Tips

- Press Ctrl+R as a shortcut method to reply to email.
- Set your desktop notifications only for very importa nt emails.
- Flag messages quickly by selecting messages and hitting the Insert key.
- Save frequently sent emails as a template to reuse again and again.
- Conveniently save important emails as files.

6.2.3 E-Commerce

What is E-Commerce?

E-commerce is the buying or selling of goods and services, or the transmitting of money or data, electronically on the internet. E-Commerce is the short form for "electronic commerce."

Examples of E-Commerce

Some examples of e-commerce are:

- Online shopping
- Online auctions
- Online ticketing
- Electronic payments
- Internet banking

Types of E-Commerce

E-commerce can be classified based on the types of participants in the transaction. The main types of e-commerce are:

- **Business to Business (B2B)**: Both the transacting parties are businesses.
- **Business to Consumer (B2C)**: Businesses sell electronically to end-consumers.
- **Consumer to Consumer (C2C):** Consumers come together to buy, sell or trade items to other consumers.
- **Consumer-to-Business (C2B)**: Consumers make products or services available for purchase to companies looking for exactly those services or products.
- **Business-to-Administration (B2A)**: Online transactions conducted between companies and public administration.
- **Consumer-to-Administration (C2A)**: Online transactions conducted between individual and public administration.

6.2.3.1 Benefits of E-Commerce

The e-commerce business provides some benefits for retailers and customers.

Benefits for retailers

- Establishes an online presence
- Reduces operational costs by removing overhead costs
- Increases brand awareness through the use of good keywords
- Increases sales by removing geographical and time constraints

Benefits for customers

- Offers a wider range of choice than any physical store
- Enables goods and services to be purchased from remote locations
- Enables consumers to perform price comparisons

6.2.3.2 Digital India Campaign

Prime Minister Narendra Modi launched the Digital India campaign in 2015, with the objective of offering every citizen of India access to digital services, knowledge and information. The campaign aims to improve the country's online infrastructure and increase internet connectivity, thus boosting the e-commerce industry.

Currently, the majority of online transactions come from tier 2 and tier 3 cities. Once the Digital India campaign is in place, the government will deliver services through mobile connectivity, which will help deliver internet to remote corners of the country. This will help the e-commerce market to enter India's tier 4 towns and rural areas.

E-Commerce Activity

Choose a product or service that you want to sell online. Write a brief note explaining how you will use existing e-commerce platforms, or create a new e-commerce platform, to sell your product or service.

Tips

- Before launching your e-commerce platform, test everything.
- Pay close and personal attention to your social media.

UNIT 6.3: Money Matters

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss the importance of saving money
2. Discuss the benefits of saving money
3. Discuss the main types of bank accounts
4. Describe the process of opening a bank account
5. Differentiate between fixed and variable costs
6. Describe the main types of investment options
7. Describe the different types of insurance products
8. Describe the different types of taxes
9. Discuss the uses of online banking
10. Discuss the main types of electronic funds transfers

6.3.1 Personal Finance – Why to Save?

Importance of Saving

We all know that the future is unpredictable. You never know what will happen tomorrow, next week or next year. That's why saving money steadily through the years is so important. Saving money will help improve your financial situation over time. But more importantly, knowing that you have money stashed away for an emergency will give you peace of mind. Saving money also opens the door to many more options and possibilities.

Benefits of Saving

Inculcating the habit of saving leads to a vast number of benefits. Saving helps you:

- **Become financially independent**: When you have enough money saved up to feel secure you can start making your choices, from taking a vacation whenever you want, to switching careers or starting your own business.
- **Invest in yourself through education**: Through saving, you can earn enough to pay up for courses that will add to your professional experience and ultimately result in higher paying jobs.
- **Get out of debt**: Once you have saved enough as a reserve fund, you can use your savings to pay off debts like loans or bills that have accumulated over time.
- **Be prepared for surprise expenses:** Having money saved enables you to pay for unforeseen expenses like sudden car or house repairs, without feeling financially stressed.
- **Pay for emergencies**: Saving helps you deal with emergencies like sudden health issues or emergency trips without feeling financially burdened.

- **Afford large purchases and achieve major goals**: Saving diligently makes it possible to place down payments towards major purchases and goals, like buying a home or a car.
- **Retire**: The money you have saved over the years will kee p you comfortable when you no longer have the income you would get from your job.

Tips

- Break your spending habit. Try not spending on one expensive item per week, and put the money that you would have spent into your savings.
- Decide that you will not buy anything on certain days or weeks and stick to your word.

6.3.2 Types of Bank Accounts

In India, banks offer four main types of bank accounts. These are:

1. Current Accounts
2. Savings Accounts
3. Recurring Deposit Accounts
4. Fixed Deposit Accounts

Current Accounts

Current accounts offer the most liquid deposits and thus, are best suited for businessmen and companies. As these accounts are not meant for investments and savings, there is no imposed limit on the number or amount of transactions that can be made on any given day. Current account holders are not paid any interest on the amounts held in their accounts. They are charged for certain services offered on such accounts.

Saving Accounts

Savings accounts are meant to promote savings, and are therefore the num ber one choice for salaried individuals, pensioners and students. While there is no restriction on the number and amount of deposits made, there are usually restrictions on the number and amount of withdrawals. Savings account holders are paid interest on their savings.

Recurring Deposit Accounts

Recurring Deposit accounts, also called RD accounts, are the accounts of choice for those who want to save an amount every month, but are unable to invest a large sum at one time. Such account holders deposit a small, fixed amount every month for a pre-determined period (minimum 6 months). Defaulting on a monthly payment results in the account holder being charged a penalty amount. The total amount is repaid with interest at the end of the specified period.

Fixed Deposit Accounts

Fixed Deposit accounts, also called FD accounts, are ideal for those who wish to deposit their savings for a long term in return for a high rate of interest. The rate of interest offered depends on the amount deposited and the time period, and also differs from bank to bank. In the case of an FD, a certain amount of money is deposited by the account holder for a fixed period of time. The money can be withdrawn when the period expires. If necessary, the depositor can break the fixed deposit prematurely. However, this usually attracts a penalty amount which also differs from bank to bank.

6.3.2.1 Opening a Bank Account

Opening a bank account is quite a simple process. Take a look at the steps to open an account of your own:

Step 1: Fill in the Account Opening Form

This form requires you to provide the following information:

- Personal details (name, address, phone number, date of birth, gender, occupation, address)
- Method of receiving your account statement (hard copy/email)
- Details of your initial deposit (cash/cheque)
- Manner of operating your account (online/mobile banking/traditional via cheque, slip books)
- Ensure that you sign wherever required on the form.

Step 2: Affix your Photograph

Stick a recent photograph of yourself in the allotted space on the form.

Step 3: Provide your Know Your Customer (KYC) Details

KYC is a process that helps banks verify the identity and address of their customers. To open an account, every individual need to submit certain approved documents with respect to photo identity (ID) and address proof. Some Officially Valid Documents (OVDs) are:

- Passport
- Driving License
- Voters' Identity Card
- PAN Card
- UIDAI (Aadhar) Card

Step 4: Submit All your Documents

Submit the completed Account Opening Form and KYC documents. Then wait until the forms are processed and your account has been opened!

Tips

- Select the right type of account.
- Fill in complete nomination details.
- Ask about fees.
- Understand the rules.
- Check for online banking – it's convenient!
- Keep an eye on your bank balance.

6.3.3 Costs: Fixed vs Variable

What are Fixed and Variable Costs?

Fixed costs and variable costs together make up a company's total cost. These are the two types of costs that companies have to bear when producing goods and services. A fixed cost does not change with the volume of goods or services a company produces. It always remains the same.

A variable cost, on the other hand, increases and decreases depending on the volume of goods and services produced. In other words, it varies with the amount produced.

Differences between Fixed and Variable Costs

Let's take a look at some of the main differences between fixed and variable costs:

Criteria	Fixed Costs	Variable Costs
Meaning	A cost that stays the same, regardless of the output produced.	A cost that changes when the
Nature	Time related.	Volume related.
Incurred	Incurred irrespective of units being produced.	Incurred only when units are produced
Unit cost	Inversely proportional to the number of units produced	Remains the same, per unit.
Examples	Depreciation, rent, salary, insurance and tax	Material consumed, wages, commission on sales and packing expenses

Tips

- When trying to determine whether a cost is fixed or variable, simply ask the following question: Will the particular cost change if the company stopped its production activities? If the answer is no, then it is a fixed cost. If the answer is yes, then it is probably a variable cost.

6.3.4 Investment, Insurance and Taxes

Investment

Investment means that money is spent to day with the aim of reaping financial gains at a future time. The main types of investment options are as follows:

- **Bonds:** Bonds are instruments used by public and private companies to raise large sums of money – too large to be borrowed from a bank. These bonds are then issued in the public market and are bought by lenders.
- **Stocks:** Stocks or equity are shares that are issued by companies and are bought by the general public.
- **Small Savings Schemes:** Small Savings Schemes are tools meant to save money in small amounts. Some popular schemes are the Employees Provident Fund, Sukanya Samriddhi Scheme and National Pension Scheme.
- **Mutual Funds:** Mutual Funds are professionally managed financial instruments that invest money in different securities on behalf of investo rs.
- **Fixed Deposits:** A fixed amount of money is kept aside with a financial institution for a fixed amount of time in return for interest on the money.
- **Real Estate:** Loans are taken from banks to purchase real estate, which is then leased or sold with the aim of making a profit on the appreciated property price.
- **Hedge Funds:** Hedge funds invest in both financial derivatives and/or publicly traded securities.
- **Private Equity:** Private Equity is trading in the shares of an operating company that is not publicly listed and whose shares are not available on the stock market.
- **Venture Capital:** Venture Capital involves investing substantial capital in a budding company in return for stocks in that company.

Insurance

There are two types of insurance, Life Insurance and General Insurance.

Life Insurance Products

The main life insurance products are:

- **Term Insurance:** This is the simplest and cheapest form of insurance. It offers financial protection for a specified tenure, say 15 to 20 years. In the case of your death, your family is paid the sum assured. In the case of your surviving the term, the insurer pays nothing.

- **Endowment Policy:** This offers the dual benefit of insurance and investment. Part of the premium is allocated towards the sum assured, while the remaining premium gets invested in equity and debt. It pays a lump sum amount after the specified duration or on the death of the policyholder, whichever is earlier.
- **Unit-Linked Insurance Plan (ULIP):** Here part of the premium is spent on the life cover, while the remaining amount is invested in equity and debt. It helps develop a regular saving habit.
- **Money Back Life Insurance:** While the policyholder is alive, periodic payments of the partial survival benefits are made during the policy tenure. On the death of the insured, the insurance company pays the full sum assured along with survival benefits.
- **Whole Life Insurance:** It offers the dual benefit of insurance and investment. It offers insurance cover for the whole life of the person or up to 100 years whichever is earlier.

General Insurance

General Insurance deals with all insurance covering assets like animals, agricultural crops, goods, factories, cars and so on.

General Insurance Products

The main general insurance products are:

- **Motor Insurance:** This can be divided into Four-Wheeler Insurance and Two-Wheeler insurance.
- **Health Insurance:** The main types of health insurance are individual health insurance, family floater health insurance, comprehensive health insurance and critical illness insurance.
- **Travel Insurance:** This can be categorised into Individual Travel Policy, Family Travel Policy, Student Travel Insurance and Senior Citizen Health Insurance.
- **Home Insurance:** This protects the house and its contents from risk.
- **Marine Insurance:** This insurance covers goods, freight and cargo against loss or damage during transit by rail, road, sea and/or air.

Taxes

There are two types of taxes:

1. Direct Taxes
2. Indirect Taxes.

Direct Tax

Direct taxes are levied directly on an entity or a person and are non-transferrable. Some examples of Direct Taxes are:

- **Income Tax:** This tax is levied on your earning in a financial year. It is applicable to both, individuals and companies.
- **Capital Gains Tax:** This tax is payable whenever you receive a sizable amount of money. It is usually of two types – short term capital gains from investments held for less than 36 months and long term capital gains from investments held for longer than 36 months.

- **Securities Transaction Tax:** This tax is added to the price of a share. It is levied every time you buy or sell shares.
- **Perquisite Tax:** This tax is levied is on perks that have been acquired by a company or used by an employee.
- **Corporate Tax:** Corporate tax is paid by companies from the revenue they earn.

Indirect Tax

Indirect taxes are levied on goods or services. Some examples of Indirect Taxes are:

- **Sales Tax:** Sales Tax is levied on the sale of a product.
- **Service Tax:** Service Tax is added to services provided in India.
- **Value Added Tax:** Value Added Tax is levied at the discretion of the state government. The tax is levied on goods sold in the state. The tax amount is decided by the state.
- **Customs Duty & Octroi:** Customs Duty is a charge that is applied on purchases that are imported from another country. Octroi is levied on goods that cross state borders within India.
- **Excise Duty:** Excise Duty is levied on all goods manufactured or produced in India

Tips

- Think about how quickly you need your money back and pick an investment option accordingly.
- Ensure that you are buying the right type of insurance policy for yourself.
- Remember, not paying taxes can result in penalties ranging from fines to imprisonment.

6.3.5 Online Banking, NEFT, RTGS etc.

What is Online Banking?

Internet or online banking allows account holders to access their account from a laptop at any location. In this way, instructions can be issued. To access an account, account holders simply need to use their unique customer ID number and password.

Internet banking can be used to:

- Find out an account balance
- Transfer amounts from one account to another
- Arrange for the issuance of cheques
- Instruct payments to be made
- Request for a cheque book
- Request for a statement of accounts
- Make a fixed deposit

Electronic Funds Transfers

Electronic funds transfer is a convenient way of transferring money f rom the comfort of one's own home, using integrated banking tools like internet and mobile banking.

Transferring funds via an electronic gateway is extremely convenient. With the help of online banking, you can choose transferring funds:

- Into your accounts of the same bank.
- Into other people's accounts of the same bank.
- Into accounts in different banks through NEFT.
- Into other bank accounts though RTGS.
- Into various accounts through IMPS.

NEFT

NEFT stands for National Electronic Funds Transfer. This money transfer system allows you to electronically transfer funds from your respective bank accounts to any other account, either in the same bank or belonging to any other bank. NEFT can be used by individuals, firms and corporate organizations to transfer fund s between accounts.

In order to transfer funds via NEFT, two things are required:

- A transferring bank
- A destination bank

Before you can transfer funds through NEFT, you will need to register the beneficiary who will be receiving the funds. In order to complete this registration, you will require the following information:

- Recipient's name
- Recipient's account number
- Recipient's bank's name
- Recipient's bank's IFSC code

RTGS

RTGS stands for Real Time Gross Settlement. This is a real time funds transfer system which enables you to transfer funds from one bank to another, in real time or on a gross basis. The transferred amount is immediately deducted from the account of one bank, and instantly credited to the other bank's account. The RTGS payment gateway is maintained by the Reserve Bank of India. The transactions between banks are made electronically.

RTGS can be used by individuals, companies and firms to transfer large sums of money. Before remitting funds through RTGS, you will need to add the beneficiary and his bank account details via your online banking account.

In order to complete this registration, you will require the following information:

- Name of the beneficiary
- Beneficiary's account number
- Beneficiary's bank address
- Bank's IFSC code

IMPS

IMPS stands for Immediate Payment Service. This is a real-time, inter-bank, electronic funds transfer system used to transfer money instantly within banks across India. IMPS enables users to make instant electronic transfer payments using mobile phones through both, Mobile Banking and SMS. It can also be used through ATMs and online banking. IMPS is available 24 hours a day and 7 days a week. The system features a secure transfer gateway and immediately confirms orders that have been fulfilled.

To transfer money through IMPS, you need to:

- Register for IMPS with your bank
- Receive a Mobile Money Identifier (MMID) from the bank
- Receive a MPIN from the bank

Once you have both these, you can login or make a request through SMS to transfer a particular amount to a beneficiary.

In order for the beneficiary to receive the transferred money, he must:

- Link his mobile number with his respective account
- Receive the MMID from the bank

In order to initiate a money transfer through IMPS, you will need to enter the following information:

- The beneficiary's mobile number
- The beneficiary's MMID
- The transfer amount
- Your MPIN

As soon as money has been deducted from your account and credited into the beneficiary's account, you will be sent a confirmation SMS with a transaction reference number, for future reference.

6.3.5.1 Differences between NEFT, RTGS & IMPS

Criteria	NEFT	RTGS	IMPS
Settlement	Done in batches	Real-time	Real-time
Full form	National Electronic Fund Transfer	Real Time Gross Settlement	Immediate Payment Service
Timings on Monday – Friday	8:00 am – 6:30 pm	9:00 am – 4:30 pm	24x7
Timings on Saturday	8:00 am – 1:00 pm	9:00 am – 1:30 pm	24x7
Minimum amount of money transfer limit	₹1	₹2 lacs	₹1
Maximum amount of money transfer limit	₹10 lacs	₹10 lacs per day	₹2 lacs
Maximum charges as per RBI	Up to 10,000 – ₹2.5 above 10,000 – 1 lac - ₹5 above 1 – 2 lacs ₹15 above 2 – 5 lacs ₹25 above 5 – 10 lacs ₹25	above 2 – 5 lacs ₹25 above 5 – 10 lacs ₹50	Up to 10,000 – ₹5 above 10,000 – 1 lac – ₹5 above 1 – 2 lacs – ₹15

Fig.6.3.2: Differences Between NEFT, RTGS & IMPS

Tips

- Never click on any links in any e-mail message to access your online banking website.
- You will never be asked for your credit or debit card details while using online banking.
- Change your online banking password regularly.

UNIT 6.4: Preparing for Employment & Self-Employment

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss the steps to prepare for an interview
2. Discuss the steps to create an effective Resume
3. Discuss the most frequently asked interview questions
4. Discuss how to answer the most frequently asked interview questions
5. Discuss basic workplace terminology

6.4.1 Interview Preparation: How to Prepare for an Interview?

The success of your getting the job that you want depends largely on how well your interview for that job goes. Therefore, before you go in for your interview, it is important that you prepare for it with a fair amount of research and planning. Take a look at the steps to follow in order to be well prepared for an interview:

1. **Research the organization that you are having the interview with.**
    - Studying the company beforehand will help you be more prepared at the time of the interview. Your knowledge of the organization will help you answer questions at the time of the interview, and will leave you looking and feeling more confident. This is sure to make you stand out from other, not as well inform ed, candidates.
    - Look for background information on the company. Ty and find an overview of the company and its industry profile.
    - Visit the company website to get a good idea of what the company does. A company website offers a wealth of important informati on. Read and understand the company's mission statement. Pay attention to the company's products/services and client list. Read through any press releases to get an idea of the company's projected growth and stability.
    - Note down any questions that you have after your research has been completed.
2. **Think about whether your skills and qualifications match the job requirements.**
    - Carefully read through and analyse the job description.
    - Make a note of the knowledge, skills and abilities required to fulfil the job requirements.
    - Take a look at the organization hierarchy. Figure out where the position you are applying for fits into this hierarchy.

3. **Go through the most typical interview questions asked, and prepare your responses.**
   - Remember, in most interviews a mix of resume-based, behavioural and case study questions are asked.
   - Think about the kind of answers you would like to provide to typical questions asked in these three areas.
   - Practice these answers until you can express them confidently and clearly.
4. **Plan your attire for the interview.**
   - It is always safest to opt for formal business attire, unless expressly informed to dress in business casual (in which case you should use your best judgement).
   - Ensure that your clothes are clean and well-ironed. Pick neutral colours – nothing too bright or flashy.
   - The shoes you wear should match your clothes, and should be clean and suitable for an interview.
   - Remember, your aim is to leave everyone you meet with the impression that you are a professional and highly efficient person.
5. **Ensure that you have packed everything that you may require during the interview.**
   - Carry a few copies of your resume. Use a good quality paper for your resume print outs.
   - Always take along a notepad and a pen.
   - Take along any information you may need to refer to, in order to fill out an application form.
   - Carry a few samples of your work, if relevant.
6. **Remember the importance of non-verbal communication.**
   - Practice projecting confidence. Remind yourself to smile and make eye contact. Practice giving a firm handshake.
   - Keep in mind the importance of posture. Practice sitting up straight. Train yourself to stop nervous gestures like fidgeting and foot-tapping.
   - Practice keeping your reactions in check. Remember, your facial expressions provide a good insight into your true feelings. Practice projecting a positive image.
7. **Make a list of questions to end the interview with.**
   - Most interviews will end with the interviewer(s) asking if you have any questions. This is your chance to show that you have done your research and are interested in learning more about the company.
   - If the interviewer does not ask you this question, you can inform him/her that you have some queries that you would like to discuss. This is the time for you to refer to the notes you made while studying the company.
   - Some good questions to ask at this point are:
     - What do you consider the most important criteria for success in this job?
     - How will my performance be evaluated?
     - What are the opportunities for advancement?
     - What are the next steps in the hiring process?
   - Remember, never ask for information that is easily available on the company website.

Tips

- Ask insightful and probing questions.
- When communicating, use effective forms of body language like smiling, making eye contact, and actively listening and nodding. Don't slouch, play with nearby items, fidget, chew gum, or mumble.

6.4.2 Preparing an Effective Resume

A resume is a formal document that lists a candidate's work experience, education and skills. A good resume gives a potential employer enough information to believe the applicant is worth interviewing. That's why it is so important to create a résumé that is effective. Take a look at the steps to create an effective resume:

Step 1: Write the Address Section

The Address section occupies the top of your resume. It includes information like your name, address, phone number and e-mail address. Insert a bold line under the section to separate it from rest of your resume.

Example:

Jasmine Watts
Breach Candy, Mumbai – India
Contact No: +91 2223678270
Email: jasmine.watts@gmail.com

Step 2: Add the Profile Summary Section

This part of your resume should list your overall experiences, achievements, awards, certifications and strengths. You can make your summary as short as 2-3 bullet points or as long as 8-10 bullet points.

Example:

Profile Summary

- A Content Writer graduated from University of Strathclyde having 6 years of experience in writing website copy.
- Core expertise lies in content creation for e-learning courses, specifically for the K-12 segment.

Step 3: Include Your Educational Qualifications

When listing your academic records, first list your highest degree. Then add the second highest qualification under the highest one and so on. To provide a clear and accurate picture of your educational background, it is critical that include information on your position, rank, percentage or CPI for every degree or certification that you have listed.

If you have done any certifications and trainings, you can add a Trainings & Certifications section under your Educational Qualifications section.

Example:

Educational Qualifications

- Masters in International Management (2007) from Columbia University with 8.8 CPI.
- Bachelor of Management Studies (2004) from Mumbai University with 87% marks.
- 10+2 with Math, Stats (2001) from Maharashtra Board with 91% marks.
- High School (1999) from Maharashtra Board with 93% marks.

Step 4: List Your Technical Skills

When listing your technical skills, start with the skills that you are most confident about. Then add the skills that you do not have as good a command over. It is perfectly acceptable to include just one skill, if you feel that particular skill adds tremendous value to your résumé. If you do not have any technical skills, you can omit this step.

Example:

Technical Skills

- Flash
- Photoshop

Step 5: Insert Your Academic Project Experience

List down all the important projects that you have worked on. Include the following information in this section:

- Project title
- Organization
- Platform used
- Contribution
- Description

Example:

Academic Projects

Project Title: Different Communication Skills

Organization: True Blue Solutions

Platform used: Articulate

Contribution: Content writing and graphic visualization

Description: Development of storyboards for corporate induction & training programs

Step 6: List Your Strengths

This is where you list all your major strengths. This section should be in the form of a bulleted list.

Example:

Strengths

- Excellent oral, written and presentation skills
- Action-oriented and result-focused
- Great time management skills

Step 7: List Your Extracurricular Activities

It is very important to show that you have diverse interests and that your life consists of more than academics. Including your extracurricular activities can give you an added edge over other candidates who have similar academic scores and project experiences. This section should be in the form of a bulleted list.

Example:

Extracurricular Activities

- Member of the Debate Club
- Played tennis at a national level
- Won first prize in the All India Camel Contest, 2010

Step 8: Write Your Personal Details

The last section of your résumé must include the following personal information:

Date of birth	Gender & marital status
Nationality	Languages known

Example:

Personal Details

- Date of birth: 25th May, 1981
- Gender & marital status: Female, Single
- Nationality: Indian
- Languages known: English, Hindi, Tamil, French

Tips

- Keep your resume file name short, simple and informational.
- Make sure the resume is neat and free from typing errors.
- Always create your resume on plain white paper.

6.4.3 Interview FAQs

Take a look at some of the most frequently asked interview questio ns, and some helpful tips on how to answer them.

Q1. Can you tell me a little about yourself?

Tips to answer:

- Don't provide your full employment or personal history.
- Offer 2-3 specific experiences that you feel are most valuable and relevant.
- Conclude with how those experiences have made you perfect for this specific role.

Q2. How did you hear about the position?

Tips to answer:

- Tell the interviewer how you heard about the job – whether it was through a friend (name the friend), event or article (name them) or a job portal (say which one).
- Explain what excites you about the position and what in particular caught your eye about this role.

Q3. What do you know about the company?

Tips to answer:

- Don't recite the company's About Us page.
- Show that you understand and care about the company's goals.
- Explain why you believe in the company's mission and values.

Q4. Why do you want this job?

Tips to answer:

- Show that you are passionate about the job.
- Identify why the role is a great fit for you.
- Explain why you love the company.

Q5. Why should we hire you?

Tips to answer:

- Prove through your words that you can not only do the work, but can definitely deliver excellent results.
- Explain why you would be a great fit with the team and work culture.
- Explain why you should be chosen over any other candidate.

Q6. What are your greatest professional strengths?

Tips to answer:

- Be honest – share some of your real strengths, rather than give answers that you think sound good.
- Offer examples of specific strengths that are relevant t o the position you are applying for.
- Provide examples of how you've demonstrated these strengths.

Q7. What do you consider to be your weaknesses?

Tips to answer:

- The purpose of this question is to gauge your self-awareness and honesty.
- Give an example of a trait that you struggle with, but that you're working on to improve.

Q8. What are your salary requirements?

Tips to answer:

- Do your research beforehand and find out the typical salary range for the job you are applying for.
- Figure out where you lie on the pay scale based on your experience, education, and skills.
- Be flexible. Tell the interviewer that you know your skills are valuable, but that you want the job and are willing to negotiate.

Q9. What do you like to do outside of work?

Tips to answer:

- The purpose of this question is to see if you will fit in with the company culture.
- Be honest – open up and share activities and hobbies that interest and excite you.

Q10. If you were an animal, which one would you want to be?

Tips to answer:

- The purpose of this question is to see if you are able to think on your feet.
- There's no wrong answer – but to make a great impression try to bring out your strengths or personality traits through your answer.

Q11: What do you think we could do better or differently?

Tips to answer:

- The purpose of this question is to see if you have done your research on the company, and to test whether you can think critically and come up with new ideas.
- Suggest new ideas. Show how your interests and expertise would help you execute these ideas.

Q12: Do you have any questions for us?

Tips to answer:

- Do not ask questions to which the answers can be easily found on the company website or through a quick online search.
- Ask intelligent questions that show your ability to think critically.

Tips

- Be honest and confident while answering.
- Use examples of your past experiences wherever possible to make your answers more impactful.

6.4.4 Work Readiness – Terms & Terminologies

Every employee should be well versed in the following terms:

- **Annual leave:** Paid vacation leave given by employers to employees.
- **Background Check:** A method used by employers to verify the accuracy of the information provided by potential candidates.
- **Benefits:** A part of an employee's compensation package.
- **Breaks:** Short periods of rest taken by employees during working hours.
- **Compensation Package:** The combination of salary and benefits that an employer provides to his/her employees.
- **Compensatory Time (Comp Time):** Time off in lieu of pay.
- **Contract Employee:** An employee who works for one organization that sells said employee's service to another company, either on a project or time basis.
- **Contract of Employment:** When an employee is offered work in exchange for wages or salary, and accepts the offer made by the employer, a contrac t of employment exists.
- **Corporate Culture:** The beliefs and values shared by all the members of a company, and imparted from one generation of employees to another.
- **Counter Offer/Counter Proposal:** A negotiation technique used by potential candidates to increase the amount of salary offered by a company.
- **Cover Letter:** A letter that accompanies a candidate's resume. It emphasizes the important points in the candidate's resume and provides real examples that prove the candidate's ability to perform the expected job role.
- **Curriculum Vitae (CV)/Resume:** A summary of a candidate's achievements, educational work experience, skills and strengths.
- **Declining Letter:** A letter sent by an employee to an employer, turning down the job offer employer to the employee.
- **Deductions:** Amounts subtracted from an employee's pay and listed on the employee's pay slip.
- **Discrimination:** The act of treating one person not as favourably as another person.
- **Employee:** A person who works for another person in exchange for payment.
- **Employee Training:** A workshop or in-house training that an employee is asked to attend by his or her superior, for the benefit of the employer.
- **Employment Gaps:** Periods of unemployed time between jobs.
- **Fixed-Term Contract:** A contract of employment which gets terminated on an agreed-upon date.
- **Follow-Up:** The act of contacting a potential employer after a candidate has submitted his or her resume.
- **Freelancer/Consultant/Independent Contractor:** A person who works for him or herself for temporary jobs and projects with different employers.
- **Holiday**: Paid time-off from work.
- **Hourly Rate**: The amount of salary or wages paid for 60 minutes of work.

- **Internship**: A job opportunity offered by an employer to a potential employee, called an at the employer's company for a fixed, limited time period.
- **Interview**: A conversation between a potential employee and a representative of an order to determine if the potential employee should be hired.
- **Job Application**: A form which asks for a candidate's information like the candidate's name, details and work experience. The purpose of a candidate submitting a job application, is to show that candidate's interest in working for a particular company.
- **Job Offer**: An offer of employment made by an employer to a potential employee.
- **Job Search Agent**: A program that enables candidates to search for employment opportunities by selecting criteria listed in the program, for job vacancies. background, made by the and pitches intern, to work employer, in address, contact
- **Lay Off**: A lay off occurs when an employee is temporarily let go from his or her job, due to the employer not having any work for that employee.
- **Leave**: Formal permission given to an employee, by his or her employer, to take a leave of absence from work.
- **Letter of Acceptance**: A letter given by an employer to an employee, confirming the offer of employment made by the employer, as well as the conditions of the offer.
- **Letter of Agreement**: A letter that outlines the terms of employment.
- **Letter of Recommendation**: A letter written for the purpose of validating the work skills o f a person.
- **Maternity Leave**: Leave taken from work by women who are pregnant, or who have just given birth.
- **Mentor**: A person who is employed at a higher level than you, who offers you advice and guides you in your career.
- **Minimum wage**: The minimum wage amount paid on an hourly basis.
- **Notice**: An announcement made by an employee or an employer, stating that the employment contract will end on a particular date.
- **Offer of Employment**: An offer made by an employer to a prospective employee that contains important information pertaining to the job being offered, like the starting date, salary, working conditions etc.
- **Open-Ended Contract**: A contract of employment that continues till the employer or terminates it.
- **Overqualified**: A person who is not suited for a particular job because he or she has too m any years of work experience, or a level of education that is much higher than required f or the job, or is currently or was previously too highly paid.
- **Part-Time Worker**: An employee who works for fewer hours than the standard number of hours normally worked.
- **Paternity Leave**: Leave granted to a man who has recently become a father.
- **Recruiters/Head-hunters/Executive Search Firms**: Professionals who are paid by employers to search for people to fill particular positions.
- **Resigning/Resignations**: When an employee formally informs his or her employer that he or she is quitting his or her job.

- **Self-Employed**: A person who has his or her own business and does not work in the capacity of an employee.
- **Time Sheet**: A form that is submitted to an employer, by an employee, that contains the number of hours worked every day by the employee.

UNIT 6.5: Understanding Entrepreneurship

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss the concept of entrepreneurship
2. Discuss the importance of entrepreneurship
3. Describe the characteristics of an entrepreneur
4. Describe the different types of enterprises
5. List the qualities of an effective leader
6. Discuss the benefits of effective leadership
7. List the traits of an effective team
8. Discuss the importance of listening effectively
9. Discuss how to listen effectively
10. Discuss the importance of speaking effectively
11. Discuss how to speak effectively
12. Discuss how to solve problems
13. List important problem solving traits
14. Discuss ways to assess problem solving skills
15. Discuss the importance of negotiation
16. Discuss how to negotiate
17. Discuss how to identify new business opportunities
18. Discuss how to identify business opportunities within your business
19. Understand the meaning of entrepreneur
20. Describe the different types of entrepreneurs
21. List the characteristics of entrepreneurs
22. Recall entrepreneur success stories
23. Discuss the entrepreneurial process
24. Describe the entrepreneurship ecosystem
25. Discuss the government's role in the entrepreneurship ecosystem
26. Discuss the current entrepreneurship ecosystem in India
27. Understand the purpose of the Make in India campaign
28. Discuss the relationship between entrepreneurship and risk appetite
29. Discuss the relationship between entrepreneurship and resilience
30. Describe the characteristics of a resilient entrepreneur
31. Discuss how to deal with failure

6.5.1 Concept Introduction

Anyone who is determined to start a business, no matter what the risk, is an entrepreneur. Entrepreneurs run their own start-up, take responsibility for the financial risks and use creativity, innovation and vast reserves of self -motivation to achieve success. They dream big and are determined to do whatever it takes to turn their idea into a viable offering. The aim of an entrepreneur is to create an enterprise. The process of creating this enterprise is known as entrepreneurship.

6.5.1.1 Importance of Entrepreneurship

Entrepreneurship is very important for the following reasons:

1. It results in the creation of new organizations
2. It brings creativity into the marketplace
3. It leads to improved standards of living
4. It helps develop the economy of a country

6.5.1.2 Characteristics of Entrepreneurs

All successful entrepreneurs have certain characteristics in common.

They are all:

- Extremely passionate about their work
- Confident in themselves
- Disciplined and dedicated
- Motivated and driven
- Highly creative
- Visionaries
- Open-minded
- Decisive

Entrepreneurs also have a tendency to:

- Have a high-risk tolerance
- Thoroughly plan everything
- Manage their money wisely
- Make their customers their priority
- Understand their offering and their market in detail
- Ask for advice from experts when required
- Know when to cut their losses

6.5.1.3 Examples of Famous Entrepreneurs

Some famous entrepreneurs are:

- Bill Gates (Founder of Microsoft)
- Steve Jobs (Co-founder of Apple)
- Mark Zuckerberg (Founder of Facebook)
- Pierre Omidyar (Founder of eBay)

6.5.1.4 Types of Enterprises

As an entrepreneur in India, you can own and run any of the following types of enterprises:

Sole Proprietorship

In a sole proprietorship, a single individual owns, manages and controls the enterprise. This type of business is the easiest to form with respect to legal formalities. The business and the owner have no separate legal existence. All profit belongs to the proprietor, as do all the losses the liability of the entrepreneur is unlimited.

Partnership

A partnership firm is formed by two or more people. The owners of the enterprise are called partners. A partnership deed must be signed by all the partners. The firm and its partners have no separate legal existence. The profits are shared by the partners. With respect to losses, the liability of the partners is unlimited. A firm has a limited life span and must be dissolved when any one of the partners dies, retires, claims bankruptcy or goes insane.

Limited Liability Partnership (LLP)

In a Limited Liability Partnership or LLP, the partners of the firm enjoy perpetual existence as well as the advantage of limited liability. Each partner's liability is limited to their agreed contribution to the LLP. The partnership and its partners have a separate legal existence.

Tips

- Learn from others' failures.
- Be certain that this is what you want.
- Search for a problem to solve, rather than look for a problem to attach to your idea.

6.5.2 Leadership & Teamwork: Leadership and Leaders

Leadership means setting an example for others to follow. Setting a good example means not asking someone to do something that you wouldn't willingly want to do yourself. Leadership is about figuring out what to do in order to win as a team, and as a company.

Leaders believe in doing the right things. They also believe in helping others to do the right things. An effective leader is someone who:

- Creates an inspiring vision of the future.
- Motivates and inspires his team to pursue that vision.

6.5.2.1 Leadership Qualities That All Entrepreneurs Need

Building a successful enterprise is only possible if the entrepreneur in charge possesses excellent leadership qualities. Some critical leadership skills that every entrepreneur must have are:

1. **Pragmatism:** This means having the ability to highlight all obstacles and challenges, in order to resolve issues and reduce risks.
2. **Humility:** This means admitting to mistakes often and early, and being quick to take responsibility for your actions. Mistakes should be viewed as challenges to overcome, not opportunities to point blame.
3. **Flexibility:** It is critical for a good leader to be very flexible and quickly adapt to change. It is equally critical to know when to adapt and when not to.
4. **Authenticity:** This means showing both, your strengths and your weaknesses. It means being human and showing others that you are human.
5. **Reinvention:** This means refreshing or changing your leadership style when necessary. To do this, it's important to learn where your leadership gaps lie and find out what resources are required to close them.
6. **Awareness:** This means taking the time to recognize how others view you. It means understanding how your presence affects those around you.

6.5.2.2 Benefits of Effective Leadership

Effective leadership results in numerous benefits. Great leadership leads to the leader successfully:

- Gaining the loyalty and commitment of the team members
- Motivating the team to work towards achieving the company's goals and objectives
- Building morale and instilling confidence in the team members
- Fostering mutual understanding and team-spirit among team members
- Convincing team members about the need to change when a situation requires adaptability

6.5.2.3 Teamwork and Teams

Teamwork occurs when the people in a workplace combine their individual skills to pursue a common goal. Effective teams are made up of individuals who work together to achieve this common goal. A great team is one who holds themselves accountable for the end result.

6.5.2.4 Importance of Teamwork in Entrepreneurial Success

For an entrepreneurial leader, building an effective team is critical to the success of a venture. An entrepreneur must ensure that the team he builds possesses certain crucial qualities, traits and characteristics. An effective team is one which has:

1. **Unity of purpose:** All the team members should clearly understand and be equally committed to the purpose, vision and goals of the team.
2. **Great communication skills:** Team members should have the ability to express their concerns, ask questions and use diagrams, and charts to convey complex information.
3. **The ability to collaborate:** Every member should feel entitled to provide regular feedback on new ideas.
4. **Initiative:** The team should consist of proactive individuals. The members should have the enthusiasm to come up with new ideas, improve existing ideas, and conduct their own research.
5. **Visionary members:** The team should have the ability to anticipate problems and act on these potential problems before they turn into real problems.
6. **Great adaptability skills:** The team must believe that change is a positive force. Change should be seen as the chance to improve and try new things.
7. **Excellent organizational skills:** The team should have the ability to develop standard work processes, balance responsibilities, properly plan projects, and set in place methods to measure progress and ROI.

Tips

- Don't get too attached to your original idea. Allow it to evolve and change.
- Be aware of your weaknesses and build a team that will complement your shortfalls.
- Hiring the right people is not enough. You need to promote or incentivize your most talented people to keep them motivated.
- Earn your team's respect.

6.5.3 Communication Skills

Listening is the ability to correctly receive and understand messages during the process of communication. Listening is critical for effective communication. Without effective listening skills, messages can easily be misunderstood. This results in a communication breakdown and can lead to the sender and the receiver of the message becoming frustrated or irritated.

It's very important to note that listening is not the same as hearing. Hearing just refers to sounds that you hear. Listening is a whole lot more than that. To listen, one requires focus. It means not only paying attention to the story, but also focusing on how the story is relayed, the way language and voice is used, and even how the speaker uses their body language. The ability to listen depends on how effectively one can perceive and understand both, verbal and non-verbal cues.

6.5.3.1 How to Listen Effectively?

To listen effectively you should:

- Stop talking
- Stop interrupting
- Focus completely on what is being said
- Nod and use encouraging words and gestures
- Be open-minded
- Think about the speaker's perspective
- Be very, very patient
- Pay attention to the tone that is being used
- Pay attention to the speaker's gestures, facial expressions and eye movements
- Not try and rush the person
- Not let the speaker's mannerisms or habits irritate or distract you

6.5.3.2 The Importance of Speaking Effectively

How successfully a message gets conveyed depends entirely on how effectively you are able to get it through. An effective speaker is one who enunciates properly, pronounces words correctly, chooses the right words and speaks at a pace that is easily understandable. Besides this, the words spoken out loud need to match the gestures, tone and body language used.

What you say, and the tone in which you say it, results in numerous perceptions being formed. A person who speaks hesitantly may be perceived as having low self-esteem or lacking in knowledge of the discussed topic. Those with a quiet voice may very well be labelled as shy. And those who speak in commanding tones with high levels of clarity, are usually considered to be extremely confident. This makes speaking a very critical communication skill.

6.5.3.3 How to Speak Effectively?

To speak effectively you should:

- Incorporate body language in your speech like eye contact, smiling, nodding, gesturing etc.
- Build a draft of your speech before actually making your speech.
- Ensure that all your emotions and feelings are under control.
- Pronounce your words distinctly with the correct pitch and intensity. Your speech should be crystal clear at all times. Use a pleasant and natural tone when speaking. Your audience should not feel like you are putting on an accent or being unnatural in any way.
- Use precise and specific words to drive your message home. Ambiguity should be avoided at all costs.
- Ensure that your speech has a logical flow.
- Be brief. Don't add any unnecessary information.
- Make a conscious effort to avoid irritating mannerisms like fidgeting, twitching etc.

- Choose your words carefully and use simple words that the majority of the audience will have no difficulty understanding.
- Use visual aids like slides or a whiteboard.
- Speak slowly so that your audience can easily understand what you're saying. However, be careful not to speak too slowly because this can come across as stiff, unprepared or even condescending.
- Remember to pause at the right moments.

Tips

- If you're finding it difficult to focus on what someone is saying, try repeating their words in your head.
- Always maintain eye contact with the person that you are communicating with, when speaking as well as listening. This conveys and also encourages interest in the conversation.

6.5.4 Problem Solving & Negotiation Skills

As per The Concise Oxford Dictionary (1995), a problem is, "A doubtful or difficult matter requiring a solution"

All problems contain two elements:

1. Goals
2. Obstacles

The aim of problem solving is to recognize the obstacles and remove them in order to achieve the goals.

6.5.4.1 How to Solve Problems?

Solving a problem requires a level of rational thinking. Here are some logical steps to follow when faced with an issue:

- **Step 1:** Identify the problem
- **Step 2:** Study the problem in detail
- **Step 3:** List all possible solutions
- **Step 4:** Select the best solution
- **Step 5:** Implement the chosen solution
- **Step 6:** Check that the problem has really been solved

6.5.4.2 Important Traits for Problem Solving

Highly developed problem-solving skills are critical for both, business owners and their employees. The following personality traits play a big role in how effectively problems are solved:

- Being open minded
- Asking the right questions
- Being proactive
- Not panicking
- Having a positive attitude
- Focusing on the right problem

6.5.4.3 How to Assess for Problem Solving Skills?

As an entrepreneur, it would be a good idea to assess the level of problem solving skills of potential candidates before hiring them. Some ways to assess this skill are through:

1. **Application forms:** Ask for proof of the candidate's problem solving skills in the application form.
2. **Psychometric tests:** Give potential candidates logical reasoning and critical thinki ng tests and see how they fare.
3. **Interviews:** Create hypothetical problematic situations or raise ethical questions and see how the candidates respond.
4. **Technical questions:** Give candidates examples of real life problems and evaluate their thought process.

6.5.4.4 What is Negotiation?

Negotiation is a method used to settle differences. The aim of negotiation is to resolve differences through a compromise or agreement while avoiding disputes. Without negotiation, conflicts are likely to lead to resentment betw een people. Good negotiation skills help satisfy both parties and go a long way towards developing strong relationships.

Why Negotiate?

Starting a business requires many, many negotiations. Some negotiations are small while others are critical enough to make or break a start-up. Negotiation also plays a big role inside the workplace. As an entrepreneur, you need to know not only know how to negotiate yourself, but also how to train employees in the art of negotiation.

How to Negotiate?

Take a look at some steps to help you negotiate:

- **Step 1:** Pre-Negotiation Preparation: Agree on where to meet to discuss the problem, decide who all will be present and set a time limit for the discussion.
- **Step 2:** Discuss the problem: This involves asking questions, listening to the other side, putting your views forward and clarifying doubts.
- **Step 3:** Clarify the Objective: Ensure that both parties want to solve the same problem and reach the same goal.
- **Step 4:** Aim for a Win-Win Outcome: Try your best to be open minded when negotiating. Compromise and offer substitute solutions to arrive at an outcome where both win.
- **Step 5:** Clearly Define the Agreement: When an agreement has been reached, the details of the agreement should be crystal clear to both sides, with no scope for misunderstandings.
- **Step 6:** Implement the Agreed Upon Solution: Agree on a course of action to set the solution in motion.

Tips

- Know exactly what you want before you work towards getting it
- Give more importance to listening and thinking, than speaking
- Focus on building a relationship rather than winning
- Remember that your people skills will affect the outcome
- Know when to walk away – sometimes reaching an agreement may not be possible

6.5.5 Business Opportunities Identification

"The entrepreneur always searches for change, responds to it and exploits it as an opportunity."

Peter Drucker

The ability to find good business opportunities is an important characteristic of an entrepreneur.

What is an Opportunity?

The word opportunity suggests a good chance or a favourable situation to do something offered by circumstances.

A business opportunity is typically a good/favourable change that can be used to run a business in a given environment, at a given point of time.

Common Questions Faced by Entrepreneurs

A critical question that all entrepreneurs face is how to go about finding the business opportunity that is right for them.

Some common questions that entrepreneurs constantly think about are:

- Should the new enterprise introduce a new product or service based on an unmet need?
- Should the new enterprise select an existing product or service from one market and offer it in another where it may not be available?
- Should the enterprise be based on a tried and tested formula that has worked elsewhere?

It is therefore extremely important that entrepreneurs must learn how to identify new and existing business opportunities and evaluate their chances of success.

When is an Idea an Opportunity?

An idea is an opportunity when:

- It creates or adds value to a customer
- It solves a significant problem, removes a pain point or meets a demand
- Has a robust market and profit margin
- Is a good fit with the founder and management team at the right time and place

Factors to Consider When Looking for Opportunities

Consider the following when looking for business opportunities:

- Economic trends
- Changes in funding
- Changing relationships between vendors, partners and suppliers
- Market trends
- Changes in political support
- Shift in target audience

Ways to Identify New Business Opportunities

- **Identify Market Inefficiencies:** When looking at a market, consider what inefficiencies are present in the market. Think about ways to correct these inefficiencies.
- **Remove Key Hassles:** Rather than create a new product or service, you can innovatively improve a product, service or process.
- **Create Something New:** Think about how you can create a new experience for customers, based on existing business models.
- **Pick a Growing Sector/Industry:** Research and find out which sectors or industries are growing and think about what opportunities you can tap in the same.
- **Think About Product Differentiation:** If you already have a product in mind, think about ways to set it apart from the existing ones.

Ways to Identify Business Opportunities within Your Business

1. SWOT Analysis

An excellent way to identify opportunities inside your business is by creating a SWOT analysis. The acronym SWOT stands for strengths, weaknesses, opportunities, and threats. SWOT analysis framework:

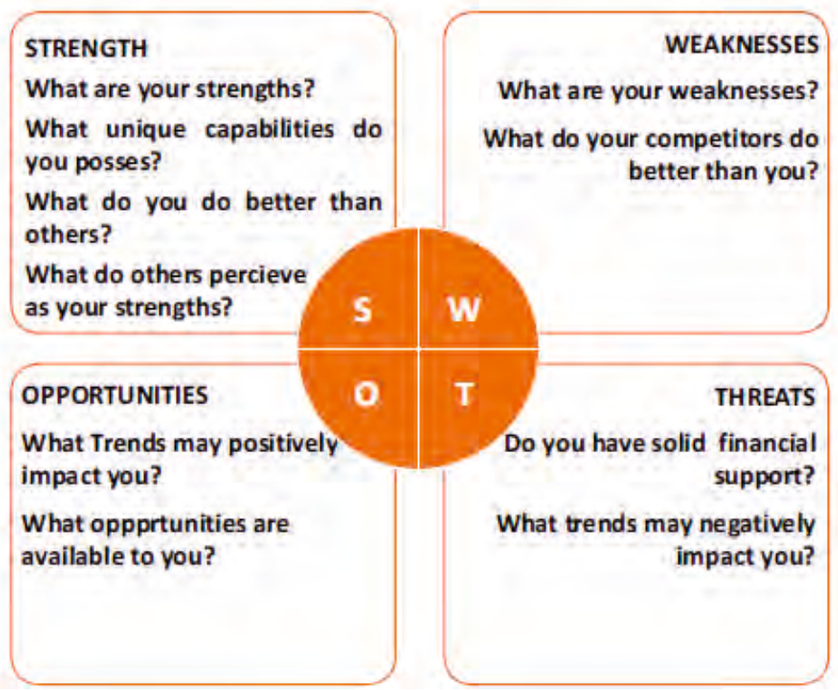

Fig.6.5.1. SWOT Analysis

Consider the following when looking for business opportunities:

By looking at yourself and your competitors using the SWOT framework, you can uncover opportunities that you can exploit, as well as manage and eliminate threats that could derail your success.

2. Establishing Your USP

Establish your USP in such a way that positions you differently from your competitors. Identify the uniqueness about your product that will motivate customers to buy from you and then promote that reason.

Opportunity Analysis

Once you have identified an opportunity, you need to analyse it. To analyse an opportunity, you must:

- Focus on the idea
- Focus on the market of the idea
- Talk to industry leaders in the same space as the idea
- Talk to players in the same space as the idea

Tips

- Remember, opportunities are situational.
- Look for a proven track record.
- Avoid the latest craze.
- Love your idea.

6.5.6 Entrepreneurship Support Eco-System

An entrepreneur is a person who:

- Does not work for an employee
- Runs a small enterprise
- Assumes all the risks and rewards of the enterprise, idea, good or service

Types of Entrepreneurs

There are four main types of entrepreneurs:

1. **The Traditional Entrepreneur:** This type of entrepreneur usually has some kind of skill – they can be a carpenter, mechanic, cook etc. They have bus inesses that have been around for numerous years like restaurants, shops and carpenters. Typically, they gain plenty of experience in a particular industry before they begin their own business in a similar field.
2. **The Growth Potential Entrepreneur:** The desire of this type of entrepreneur is to start an enterprise that will grow, win many customers and make lots of money. Their ultimate aim is to eventually sell their enterprise for a nice profit. Such entrepreneurs usually have a science or technical background.
3. **The Project-Oriented Entrepreneur:** This type of entrepreneur generally has a background in the Arts or psychology. Their enterprises tend to be focus on something that they are very passionate about.
4. **The Lifestyle Entrepreneur:** This type of entrepreneur has usually worked as a teacher or a secretary. They are more interested in selling something that people will enjoy, rather than making lots of money.

Characteristics of an Entrepreneur

Successful entrepreneurs have the following characteristics:

- They are highly motivated
- They are creative and persuasive
- They are mentally prepared to handle each and every task
- They have excellent business skills – they know how to evaluate their cash flow, sales and revenue

- They are willing to take great risks
- They are very proactive – this means they are willing to do the work themselves, rather than wait for someone else to do it
- They have a vision – they are able to see the big picture
- They are flexible and open-minded
- They are good at making decisions

6.5.6.1 Entrepreneur Success Stories

Dhiru Bhai Ambani

Dhirubhai Ambani began his entrepreneurial career by selling "bhajias" to pilgrims in Mount Girnar on weekends. At 16, he moved to Yemen where he worked as a gas -station attendant, and as a clerk in an oil company. He returned to India with Rs. 50,000 and started a textile trading company. Reliance went on to become the first Indian company to raise money in global markets and the first Indian company to feature in Forbes 500 list.

Dr. Karsanbhai Patel

Karsanbhai Patel made detergent powder in the backyard of his house. He sold his product door-to door and offered a money back guarantee with every pack that was sold. He charged Rs.3 per kg when the cheapest detergent at that time was Rs.13 per kg. Dr. Patel event ually started Nirma which became a whole new segment in the Indian domestic detergent market.

6.5.6.2 The Entrepreneurial Process

Let's take a look at the stages of the entrepreneurial process.

- **Stage 1:** Idea Generation. The entrepreneurial process begins with an idea that has been thought of by the entrepreneur. The idea is a problem that has the potential to be solved.
- **Stage 2:** Germination or Recognition. In this stage a possible solution to the identified problem is thought of.
- **Stage 3:** Preparation or Rationalization. The problem is studied further and research is done to find out how others have tried to solve the same problem.
- **Stage 4:** Incubation or Fantasizing. This stage involves creative thinking for the purpose of coming up with more ideas. Less thought is given to the problem areas.
- **Stage 5:** Feasibility Study: The next step is the creation of a feasibility study to determine if the idea will make a profit and if it should be seen through.
- **Stage 6:** Illumination or Realization. This is when all uncertain areas suddenly become clear. The entrepreneur feels confident that his idea has merit.
- **Stage 7:** Verification or Validation. In this final stage, the idea is verified to see if it works and if it is useful.

Take a look at the diagram below to get a better idea of this process.

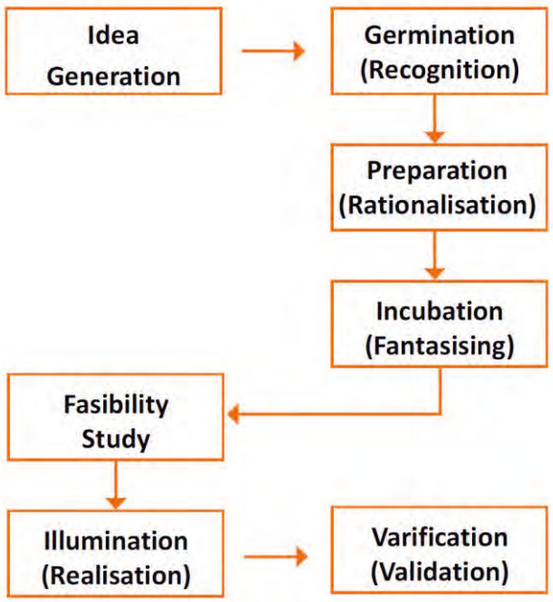

Fig.7.5.2: Stages of the entrepreneurial process

6.5.6.3 What is an Entrepreneur?

The entrepreneurship support ecosystem signifies the collective and complete nature of entrepreneurship. New companies emerge and flourish not only because of the courageous, visionary entrepreneurs who launch them, but they thrive as they are set in an environment or 'ecosystem' made of private and public participants. These players nurture and sustain the new ventures, facilitating the entrepreneurs' efforts. An entrepreneurship ecosystem comprises of the following six domains:

1. **Favourable Culture:** This includes elements such as tolerance of risk and errors, valuable networking and positive social standing of the entrepreneur.
2. **Facilitating Policies & Leadership:** This includes regulatory framework incentives and existence of public research institutes.
3. **Financing Options:** Angel financing, venture capitalists and micro loans would be good examples of this.
4. **Human Capital:** This refers to trained and untrained labour, entrepreneurs and entrepreneurship training programmes, etc.
5. **Conducive Markets for Products & Services:** This refers to an existence or scope of existence of a market for the product/service.
6. **Institutional & Infrastructural Support:** This includes legal and financing advisers, telecommunications, digital and transportation infrastructure, and entrepreneurship networking programmes.

These domains indicate whether there is a strong entrepreneurship support ecosystem and what actions should the government put in place to further encourage this ecosystem.

The six domains and their various elements have been graphically depicted.

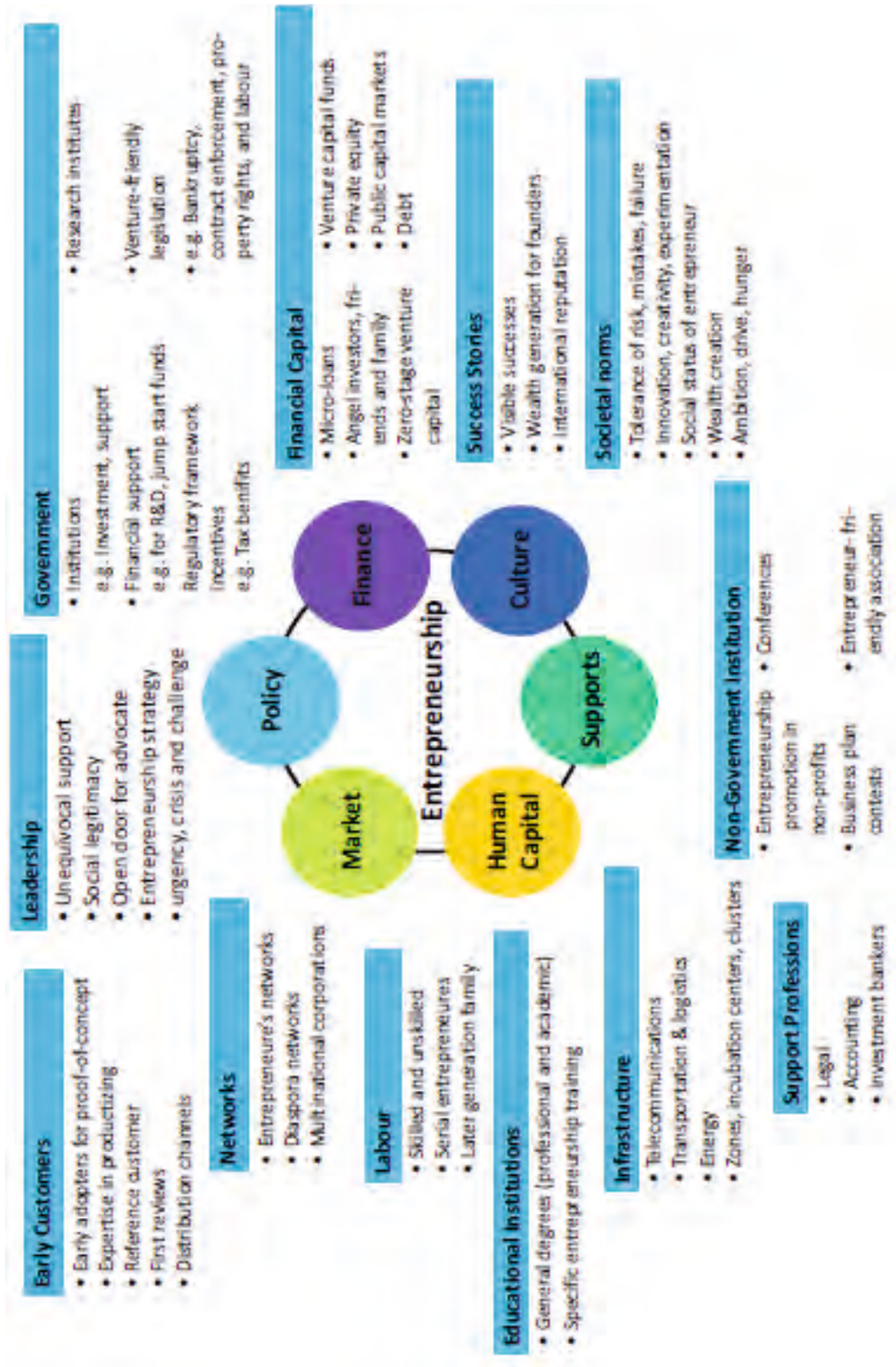

Fig.6.5.3. Entrepreneurship at a Glance

Every entrepreneurship support ecosystem is unique and all the elements of the ecosystem are interdependent. Although every region's entrepreneurship ecosystem can be broadly described by the above features, each ecosystem is the result of the hundred elements interacting in highly complex and particular ways.

Entrepreneurship ecosystems eventually become (largely) self-sustaining. When the six domains are resilient enough, they are mutually beneficial. At this point, government involvement can and should be significantly minimized. Public leaders do not need to invest a lot to sustain the ecosystem. It is imperative that the entrepreneurship ecosystem incentives are formulated to be self-liquidating, hence focusing on sustain ability of the environment.

6.5.6.4 Government's Role in the Entrepreneurship Ecosystem

Encouraging new ventures is a major focus for policymakers. Governments across the world are recognizing that new businesses flourish in distinctive types of supportive environments. Policymakers should study the scenario and take into account the following points whilst they formulate policies and regulations that enable successful entrepreneurship support ecosystems.

- Policymakers should avoid regulations that discourage new entrants and work towards building efficient methods for business startups. Policies and regulations which help existing, leading firms over entrepreneurial ventures, limit competition and obstruct growth/formation of new companies.
- Therefore, in place of developing policies that are intended to improve market failures, policymakers should interact with entrepreneurs and understand the challenges faced by them. The feedback is used to develop policies which encourage exploring ideas, developing new products and increase the rates of deal flow.
- Entrepreneurial supporters ideally need to create a database that enables identifying who the members in the ecosystem are and how they are connected. The ecosystem database are useful tools in developing engagement strategies.
- Disruptions are inevitable in economic as well as social life. However, it's important to note that economic disruption gives rise to entrepreneurial opportunities. Architects of the entrepreneurship ecosystems (entrepreneurs, mentors, policymakers and consumers,) should anticipate these dips, thus capitalizing on the opportunities they create.

6.5.6.5 Snapshot of the Entrepreneurship Ecosystem in India

Entrepreneurship has earned a newfound respect in India. Many Indians, with exposure to the world of business, who traditionally would have opted for a job, are setting up their own ventures. Many elements of the entrepreneurship ecosystem are beginning to come together. For example, increase in venture capitalists, government schemes and incubators, academia industry linkages, and emerging clusters and support to rural economy.

All these initiatives are effective but there is a need to scale up and enrich the ecosystem further in the following ways:

1. We need to review our attitude towards failures and accept them as learning experiences.
2. We must encourage the educated to become entrepreneurs and provide students in schools and colleges with entrepreneurship skills.
3. Universities, research labs and the government need to play the role of enablers in the entrepreneurship support ecosystem.
4. Policymakers need to focus on reducing the obstacles such as corruption, red tape and bureaucracy.
5. We need to improve our legal systems and court international venture capital firms and bring them to India.
6. We must devise policies and methods to reach the secondary and tertiary towns in India, where people do not have access to the same resources available in the cities.

Today, there is a huge opportunity in this country to introduce innovative solutions that are capable of scaling up, and collaborating within the ecosystem as well as enriching it.

6.5.6.6 Make in India Campaign

Every entrepreneur has certain needs. Some of their important needs are:

- To easily get loans
- To easily find investors
- To get tax exemptions
- To easily access resources and good infrastructure
- To enjoy a procedure that is free of hassles and is quick
- To be able to easily partner with other firms

The Make in India campaign, launched by Prime Minister Modi aims to satisfy all these needs of young, aspiring entrepreneurs. Its objective is to:

- Make investment easy
- Support new ideas
- Enhance skill development
- Safeguard the ideas of entrepreneurs
- Create state-of-the-art facilities for manufacturing goods

Tips

- Research the existing market, network with other entrepreneurs, venture capitalists, angel investors, and thoroughly review the policies in place to enable your entrepreneurship.
- Failure is a stepping stone and not the end of the road. Review yours and your peers' errors and correct them in your future venture.
- Be proactive in your ecosystem. Identify the key features of your ecosystem and enrich them to ensure self-sustainability of your entrepreneurship support ecosystem.

6.5.7 Risk Appetite & Resilience

Entrepreneurship and Risk

Entrepreneurs are inherently risk takers. They are path-makers not path-takers. Unlike a normal, cautious person, an entrepreneur would not think twice about quitting his job (his sole income) and taking a risk on himself and his idea.

An entrepreneur is aware that while pursuing his dreams, assumptions can be proven wrong and unforeseen events may arise. He knows that after dealing with numerous problems, success is still not guaranteed. Entrepreneurship is synonymous with the ability to take risks. This ability, called risk-appetite, is an entrepreneurial trait that is partly genetic and partly acquired.

What is Risk Appetite?

Risk appetite is defined as the extent to which a company is equipped to take risk, in order to achieve its objectives. Essentially, it refers to the balance, struck by the company, between possible profits and the hazards caused by changes in the environment (economic ecosystem, policies, etc.). Taking on more risk may lead to higher rewards but have a high probability of losses as well. However, being too conservative may go against the company as it can miss out on good opportunities to grow and reach their objectives.

The levels of risk appetite can be broadly categorized as “low”, “medium” and “high.” The company’s entrepreneur(s) need to assess all possible alternatives and choose the option most likely to succeed. Companies have varying levels of risk appetites for different objectives. The levels depend on:

- The type of industry
- Market pressures
- Company objectives

For example, a start-up with a revolutionary concept will have a very high risk appetite. The start-up can afford short term failures before it achieves longer term success. This type of appetite will not remain constant and will be adjusted to account for the present circumstances of the company.

Risk Appetite Statement

Companies have to define and articulate their risk appetite in sync with decisions made about their objectives and opportunities. The point of having a risk appetite statement is to have a framework that clearly states the acceptance and management of risk in business. It sets risk taking limits within the company. The risk appetite statement should convey the following:

- The nature of risks the business faces.
- Which risks the company is comfortable taking on and which risks are unacceptable.
- How much risk to accept in all the risk categories.
- The desired trade-off between risk and reward.
- Measures of risk and methods of examining and regulating risk exposures.

Entrepreneurship and Resilience

Entrepreneurs are characterized by a set of qualities known as resilience. These qualities play an especially large role in the early stages of developing an enterprise. Risk resilience is an extremely valuable characteristic as it is believed to protect entrepreneurs against the threat of challenges and changes in the business environment.

What is Entrepreneurial Resilience?

Resilience is used to describe individuals who have the ability to overcome setbacks related to their life and career aspirations. A resilient person is someone who is capable of easily and quickly recovering from setbacks. For the entrepreneur, resilience is a critical trait. Entrepreneurial resilience can be enhanced in the following ways:

- By developing a professional network of coaches and mentors
- By accepting that change is a part of life
- By viewing obstacles as something that can be overcome

Characteristics of a Resilient Entrepreneur

The characteristics required to make an entrepreneur resilient enough to go the whole way in their business enterprise are:

- A strong internal sense of control
- Ability to diversify and expand
- Strong social connections
- Survivor attitude
- Skill to learn from setbacks
- Cash-flow conscious habits
- Ability to look at the bigger picture
- Attention to detail

Tips

- Cultivate a great network of clients, suppliers, peers, friends and family. This will not only help you promote your business, but will also help you learn, identify new opportunities and stay tuned to changes in the market.
- Don’t dwell on setbacks. Focus on what you need to do next to get moving again.
- While you should try, and curtail expenses, ensure that it is not at the cost of your g rowth.

6.5.8 Success & Failures

Understanding Successes and Failures in Entrepreneurship

Shyam is a famous entrepreneur, known for his success story. But what most people don't know, is that Shyam failed numerous times before his enterprise became a su ccess. Read his interview to get an idea of what entrepreneurship is really about, straight from an entrepreneur who has both, failed and succeeded.

Interviewer: Shyam, I have heard that entrepreneurs are great risk-takers who are never afraid of failing. Is this true?

Shyam: Ha ha, no of course it's not true! Most people believe that entrepreneurs need to be fearlessly enthusiastic. But the truth is, fear is a very normal and valid human reaction, especially when you are planning to start your own business! In fact, my biggest fear was the fear of failing. The reality is, entrepreneurs fail as much as they succeed. The trick is to not allow the fear of failing to stop you from going ahead with your plans. Remember, failures are lessons for future success!

Interviewer: What, according to you, is the reason that entrepreneurs fail?

Shyam: Well, there is no one single reason why entrepreneurs fail. An entrepreneur can fail due to numerous reasons. You could fail because you have allowed your fear of failure to defeat you. You could fail because you are unwilling to delegate (distribute) work. As the saying goes, "You can do anything, but not everything!" You could fail because you gave up too easily – maybe you were not persistent enough. You could fail because you were focusing your energy on small, insignificant tasks and ignoring the tasks that were most important. Other reasons for failing are partnering with the wrong people, not being able to sell your product to the right customers at the right time at the right price… and many more reasons!

Interviewer: As an entrepreneur, how do you feel failure should be looked at?

Shyam: I believe we should all look at failure as an asset, rather than as something negative. The way I see it, if you have an idea, you should try to make it work, even if there is a chance that you will fail. That's because not trying is failure right there, anyway! And failure is not the worst thing that can happen. I think having regrets because of not trying, and wondering 'what if' is far worse than trying and actually failing.

Interviewer: How did you feel when you failed for the first time?

Shyam: I was completely heartbroken! It was a very painful experience. But the good news is, you do recover from the failure. And with every subsequent failure, the recovery process gets a lot easier. That's because you start to see each failure more as a lesson that will eventually help you succeed, rather than as an obstacle that you cannot overcome. You will start to realize that failure has many benefits.

Interviewer: Can you tell us about some of the benefits of failing?

Shyam: One of the benefits that I have experienced personally from failing is that the failure made me see things in a new light. It gave me answers that I didn't have before. F ailure can make you a lot stronger. It also helps keep your ego in control.

Interviewer: What advice would you give entrepreneurs who are about to start their own enterprises?

Shyam: I would tell them to do their research and ensure that their product is something that is actually wanted by customers. I'd tell them to pick their partners and employees very wisely and cautiously. I'd tell them that it's very important to be aggressive – push and market your product as aggressively as possible. I would warn them that starting an enterprise is very expensive and that they should be prepared for a situation where they run out of money. I would tell them to create long term goals and put a plan in action to achieve that goal. I would tell them to build a product that is truly unique. Be very careful and ensure that you are not copying another start-up. Lastly, I'd tell them that it's very important that they find the right investors.

Interviewer: That's some really helpful advice, Shyam! I'm sure this will help all entrepreneurs to be more prepared before they begin their journey! Thank you for all your insight!

Tips

- Remember that nothing is impossible.
- Identify your mission and your purpose before you start.
- Plan your next steps – don't make decisions hastily.

UNIT 6.6: Preparing to be an Entrepreneur

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss how market research is carried out
2. Describe the 4 Ps of marketing
3. Discuss the importance of idea generation
4. Recall basic business terminology
5. Discuss the need for CRM
6. Discuss the benefits of CRM
7. Discuss the need for networking
8. Discuss the benefits of networking
9. Discuss the importance of setting goals
10. Differentiate between short-term, medium-term and long-term goals
11. Discuss how to write a business plan
12. Explain the financial planning process
13. Discuss ways to manage your risk
14. Describe the procedure and formalities for applying for bank finance
15. Discuss how to manage your own enterprise
16. List important questions that every entrepreneur should ask before starting an enterprise

6.6.1 Market Study/The 4 Ps of Marketing/Importance of an IDEA

Understanding Market Research

Market research is the process of gathering, analysing and interpreting market information on a product or service that is being sold in that market. It also includes information on:

- Past, present and prospective customers
- Customer characteristics and spending habits
- The location and needs of the target market
- The overall industry
- Relevant competitors

Market research involves two types of data:

- **Primary information.** This is research collected by yourself or by someone hired by you.
- **Secondary information.** This is research that already exists and is out there for you to find and use.

Primary research

Primary research can be of two types:

- **Exploratory:** This is open-ended and usually involves detailed, unstructured interviews.
- **Specific:** This is precise and involves structured, formal interviews. Conducting specific

Secondary research

Secondary research uses outside information. Some common secondary sources are:

- **Public sources:** These are usually free and have a lot of good information. Examples are government departments, business departments of public libraries etc.
- **Commercial sources:** These offer valuable information but usually re quire a fee to be paid. Examples are research and trade associations, banks and other financial institutions etc.
- **Educational institutions:** These offer a wealth of information. Examples are colleges, universities, technical institutes etc.

6.6.1.1 The 4 Ps of Marketing

The 4 Ps of marketing are Product, Price, Promotion and Place.

Let's look at each of these 4 Ps in detail.

Product

A product can be tangible, like a good or intangible, like a service.

Whatever your product is, it is critical that you have a clear understanding of what you are offering, and what its unique characteristics are, before you begin with the marketing process.

Some questions to ask yourself are:

- What need does the customer have for the product/service?
- What needs does it satisfy?
- Are there any more features that can be added?
- Does it have any expensive and unnecessary features?
- How will customers use it?
- What should it be called?
- How is it different from similar products?
- How much will it cost to produce?
- Can it be sold at a profit?

Price

Once all the elements of Product have been established, the Price factor needs to be considered. The Price of a Product will depend on several factors such as profit margins, supply, demand and the marketing strategy.

Some typical questions to ask yourself include:

- What is the value of the product/service to customers?
- Do local products/services have established price points?
- Is the customer price sensitive?
- Should discounts be offered?
- How is your price compared to that of your competitors?

Promotion

Once you are certain about your Product and your Price, the next step is to look at ways to promote it. Some key elements of promotion are advertising, public relations, social media marketing, email marketing, search engine marketing, video marketing and more.

Some questions to ask yourself are:

- Where should you promote your product or service?
- What is the best medium to use to reach your target audience
- When would be the best time to promote your product?
- How are your competitors promoting their products?

Place

According to most marketers, the basis of marketing is about offering the right product, at the right price, at the right place, at the right time. For this reason, selecting the best possible location is critical for converting prospective clients into actual clients.

Some questions to ask yourself are:

- Will your product or service be looked for in a physical store, online or both?
- What should you do to access the most appropriate distribution channels?
- Will you require a sales force?
- Where are your competitors offering their products or services?
- Should you follow in your competitors' footsteps?
- Should you do something different from your competitors?

Importance of an IDEA

Ideas are the foundation of progress. An idea can be small or ground-breaking, easy to accomplish or extremely complicated to implement. Whatever the case, the fact that it is an idea gives it merit. Without ideas, nothing is possible. Most people are afraid to speak out their ideas, out for fear of being ridiculed. However, if are an entrepreneur and want to remain competitive and innovative, you need to bring your ideas out into the light.

Some ways to do this are by:

- Establishing a culture of brainstorming where you invite all interested parties to contribute
- Discussing ideas out loud so that people can add their ideas, views, opinions to them

- Being open minded and not limiting your ideas, even if the idea who have seems ridiculous
- Not discarding ideas that you don't work on immediately, but instead making a note of them and shelving them so they can be revisited at a later date.

Tips

- Keep in mind that good ideas do not always have to be unique.
- Remember that timing plays a huge role in determining the success of your idea.
- Situations and circumstances will always change, so be flexible and adapt your idea accordingly.

6.6.2 Business Entity Concepts: Basic Business Terminology

If your aim is to start and run a business, it is crucial that you have a good understanding of basic business terms. Every entrepreneur should be well versed in the following terms:

- **Accounting:** A systematic method of recording and reporting financial transactions.
- **Accounts payable:** Money owed by a company to its creditors.
- **Accounts Receivable:** The amount a company is owed by its clients.
- **Assets:** The value of everything a company owns and uses to conduct its business.
- **Balance Sheet:** A snapshot of a company's assets, liabilities and owner's equity at a given moment.
- **Bottom Line:** The total amount a business has earned or lost at the end of a month.
- **Business:** An organization that operates with the aim of making a profit.
- **Business to Business (B2B):** A business that sells goods or services to another business.
- **Business to Consumer (B2C):** A business that sells goods or services directly to the end user.
- **Capital:** The money a business has in its accounts, assets and investments. The two main types of capital are debt and equity.
- **Cash Flow:** The overall movement of funds through a business each month, including income and expenses.
- **Cash Flow Statement:** A statement showing the money that entered and exited a business during a specific period of time.
- **Contract:** A formal agreement to do work for pay.
- **Depreciation:** The degrading value of an asset over time.
- **Expense:** The costs that a business incurs through its operations.
- **Finance:** The management and allocation of money and other assets.
- **Financial Report:** A comprehensive account of a business' transactions and expenses.
- **Fixed Cost:** A one-time expense.

- **Income Statement (Profit and Loss Statement):** Shows the profitability of a business during a period of time.
- **Liabilities:** The value of what a business owes to someone else.
- **Marketing:** The process of promoting, selling and distributing a product or service.
- **Net Income/Profit:** Revenues minus expenses.
- **Net Worth:** The total value of a business.
- **Payback Period:** The amount of time it takes to recover the initial investment of a business.
- **Profit Margin:** The ratio of profit, divided by revenue, displayed as a percentage.
- **Return on Investment (ROI):** The amount of money a business gets as return from an investment.
- **Revenue:** The total amount of income before expenses are subtracted.
- **Sales Prospect:** A potential customer.
- **Supplier:** A provider of supplies to a business.
- **Target Market:** A specific group of customers at which a company's products and services are aimed.
- **Valuation:** An estimate of the overall worth of the business.
- **Variable Cost:** Expenses that change in proportion to the activity of a business.
- **Working Capital:** Calculated as current assets minus current liabilities.

6.6.3 CRM & Networking

What is CRM?

CRM stands for Customer Relationship Management. Originally the expression Customer Relationship Management meant managing one's relationship with customers. However, today it refers to IT systems and software designed to help companies manage their relationships.

The Need for CRM

The better a company can manage its relationships with its customers, the higher the chances of the company's success. For any entrepreneur, the ability to successfully retain existing customers and expand the enterprise is paramount. This is why IT systems that focus on addressing the problems of dealing with customers on a daily basis are becoming more and more in demand.

Customer needs change over time, and technology can make it easier to understand what customers really want. This insight helps companies to be more responsive to the needs of their customers. It enables them to modify their business operations when required, so that their customers are always served in the best manner possible. Simply put, CRM helps companies recognize the value of their clients and enables them to capitalize on improved customer relations.

Benefits of CRM

CRM has a number of important benefits:

- It helps improve relations with existing customers which can lead to:
  - Increased sales
  - Identification of customer needs
  - Cross-selling of products
- It results in better marketing of one's products or services
- It results in better marketing of one's products or services
- It enhances customer satisfaction and retention
- It improves profitability by identifying and focusing on the most profitable customers

6.6.3.1 What is Networking?

In business, networking means leveraging your business and personal connections in order to bring in a regular supply of new business. This marketing method is effective as well as low cost. It is a great way to develop sales opportunities and contacts. Networking can be based on referrals and introductions, or can take place via phone, email, and social and business networking websites.

The Need for Networking

Networking is an essential personal skill for business people, but it is even more important for entrepreneurs. The process of networking has its roots in relationship building. Networking results in greater communication and a stronger presence in the entrepreneurial ecosystem. This helps build strong relationships with other entrepreneurs.

Business networking events held across the globe play a huge role in connecting like-minded entrepreneurs who share the same fundamental beliefs in communication, exchanging ideas and converting ideas into realities. Such networking events also play a crucial role in connecting entrepreneurs with potential investors. Entrepreneurs may have vastly different experiences and backgrounds but they all have a common goal in mind – they all seek connection, inspiration, advice, opportunities and mentors. Networking offers them a platform to do just that.

Benefits of Networking

Networking offers numerous benefits for entrepreneurs. Some of the major benefits are:

- Getting high quality leads
- Increased business opportunities
- Good source of relevant connections
- Advice from like-minded entrepreneurs
- Gaining visibility and raising your profile
- Meeting positive and enthusiastic people

- Increased self-confidence
- Satisfaction from helping others
- Building strong and lasting friendships

Tips

- Use social media interactions to identify needs and gather feedback.
- When networking, ask open-ended questions rather than yes/no type questions.

6.6.4 Business Plan: Why Set Goals?

Setting goals is important because it gives you long-term vision and short-term motivation. Goals can be short term, medium term and long term.

Short-Term Goals

- These are specific goals for the immediate future.

Example: Repairing a machine that has failed.

Medium-Term Goals

- These goals are built on your short-term goals.
- They do not need to be as specific as your short-term goals.

Example: Arranging for a service contract to ensure that your machines don't fail again.

Long-Term Goals

These goals require time and planning.

They usually take a year or more to achieve.

Example: Planning your expenses so you can buy new machinery

Why Create a Business Plan?

A business plan is a tool for understanding how your business is put together. It can be used to monitor progress, foster accountable and control the fate of the business. It usually offers a 3-5year projection and outlines the plan that the company intends to follow to grow its revenues. A business plan is also a very important tool for getting the interest of key employees or future investors.

A business plan typically comprises of eight elements.

6.6.4.1 Elements of a Business Plan

Executive Summary

The executive summary follows the title page. The summary should clearly state your desires as the business owner in a short and business like way. It is an overview of your business and your plans. Ideally this should not be more than 1-2 pages.

Your Executive Summary should include:

- **The Mission Statement:** Explain what your business is all about.

  Example: Nike's Mission Statement

  Nike's mission statement is "To bring inspiration and innovation to every athlete in the world."
- **Company Information:** Provide information like when your business was formed, the names and roles of the founders, the number of employees, your business location(s) etc.
- **Growth Highlights:** Mention examples of company growth. Use graphs and charts where possible.
- **Your Products/Services:** Describe the products or services provided.
- **Financial Information:** Provide details on current bank and investors.
- **Summarize future plans:** Describe where you see your business in the future.

Business Description

The second section of your business plan needs to provide a detailed review of the different elements of your business. This will help potential investors to correctly understand your business goal and the uniqueness of your offering.

Your Business Description should include:

- A description of the nature of your business
- The market needs that you are aiming to satisfy
- The ways in which your products and services meet these needs
- The specific consumers and organizations that you intend to serve
- Your specific competitive advantages

Market Analysis

The market analysis section usually follows the business description. The aim of this section is to showcase your industry and market knowledge. This is also the section where you should lay down your research findings and conclusions.

Your Market Analysis should include:

- Your industry description and outlook
- Information on your target market
- The needs and demographics of your target audience
- The size of your target market

- The amount of market share you want to capture
- Your pricing structure
- Your competitive analysis
- Any regulatory requirements

Organization & Management

This section should come immediately after the Market Analysis. Your Organization & Management section should include:

- Your company's organizational structure
- Details of your company's ownership
- Details of your management team
- Qualifications of your board of directors
- Detailed descriptions of each division/department and its function
- The salary and benefits package that you offer your people

Service or Product Line

The next section is the service or product line section. This is where you describe your service or product, and stress on their benefits to potential and current customers. Explain in detail why your product of choice will fulfil the needs of your target audience.

Your Service or Product Line section should include:

- A description of your product/service
- A description of your product or service's life cycle
- A list of any copyright or patent filings
- A description of any R&D activities that you are involved in or planning

Marketing & Sales

Once the Service or Product Line section of your plan has been completed, you should start on the description of the marketing and sales management strategy for your business.

Your Marketing section should include the following strategies:

- **Market penetration strategy:** This strategy focuses on selling your existing products or services in existing markets, in order to increase your market share.
- **Growth strategy:** This strategy focuses on increasing the amount of market share, even if it reduces earnings in the short-term.
- **Channels of distribution strategy:** These can be wholesalers, retailers, distributers and even the internet.
- **Communication strategy:** These can be written strategies (e-mail, text, chat), oral strategies (phone calls, video chats, face-to-face conversations), non-verbal strategies (body language, facial expressions, tone of voice) and visual strategies (signs, webpages, illustrations).

Your Sales section should include the following information:

- **A salesforce strategy:** This strategy focuses on increasing the revenue of the enterprise.
- **A breakdown of your sales activities:** This means detailing out how you intend to sell your products or services – will you sell it offline or online, how many units do you intend to sell, what price do you plan to sell each unit at, etc.

Funding Request

This section is specifically for those who require funding for their venture. The Funding Request section should include the following information:

- How much funding you currently require.
- How much funding you will require over the next five years. This will depend on your long-term goals.
- The type of funding you want and how you plan to use it. Do you want funding that can be used only for a specific purpose, or funding that can be used for any kind of requirement?
- Strategic plans for the future. This will involve detailing out your long-term plans – what these plans are and how much money you will require to put these plans in motions.
- Historical and prospective financial information. This can be done by creating and maintaining all your financial records, right from the moment your enterprise started, to the present day. Documents required for this are your balance sheet which contains details of your company's assets and liabilities, your income statement which lists your company's revenues, expenses and net income for the year, your tax returns (usually for the last three years) and your cash flow budget which lists the cash that came in, the cash that went out and states whether you had a cash deficit (negative balance) or surplus (positive balance) at the end of each month.

Financial Planning

Before you begin building your enterprise, you need to plan your finances. Take a look at the steps for financial planning:

- **Step 1:** Create a financial plan. This should include your goals, strategies and timelines for accomplishing these goals.
- **Step 2:** Organize all your important financial documents. Maintain a file to hold your investment details, bank statements, tax papers, credit card bills, insurance papers and any other financial records.
- **Step 3:** Calculate your net worth. This means figure out what you own (assets like your house, bank accounts, investments etc.), and then subtract what you owe (liabilities like loans, pending credit card amounts etc.) the amount you are left with is your net worth.
- **Step 4:** Make a spending plan. This means write down in detail where your money will come from, and where it will go.
- **Step 5:** Build an emergency fund. A good emergency fund contains enough money to cover at least 6 months' worth of expenses.
- **Step 6:** Set up your insurance. Insurance provides long term financial security and protects you against risk.

Risk Management

As an entrepreneur, it is critical that you evaluate the risks involved with the type of enterprise that you want to start, before you begin setting up your company. Once you have identified potential risks, you can take steps to reduce them. Some ways to manage risks are:

- Research similar business and find out about their risks and how they were minimized.
- Evaluate current market trends and find out if similar products or services that launched a while ago are still being well received by the public.
- Think about whether you really have the required expertise to launch your product or service.
- Examine your finances and see if you have enough income to start your enterprise.
- Be aware of the current state of the economy, consider how the economy may change over time, and think about how your enterprise will be affected by any of those changes.
- Create a detailed business plan.

Tips

- Ensure all the important elements are covered in your plan.
- Scrutinize the numbers thoroughly.
- Be concise and realistic.
- Be conservative in your approach and your projections.
- Use visuals like charts, graphs and images wherever possible.

6.6.5 Procedure and Formalities for Bank Finance

The Need for Bank Finance

For entrepreneurs, one of the most difficult challenges faced involves securing funds for start-ups. With numerous funding options available, entrepreneurs need to take a close look at which funding methodology works best for them. In India, banks are one of the largest funders of start-ups, offering funding to thousands of start-ups every year.

6.6.5.1 What Information Should Entrepreneurs Offer Banks for Funding?

When approaching a bank, entrepreneurs must have a clear idea of the different criteria that banks use to screen, rate and process loan applications. Entrepreneurs must also be aware of the importance of providing banks with accurate and correct information. It is now easier than ever for financial institutions to track any default behaviour of loan applicants. Entrepreneurs looking for funding from banks must provide banks with information relating to their general credentials, financial situation and guarantees or collaterals that can be offered.

General Credentials

This is where you, as an entrepreneur, provide the bank with background information on yourself. Such information includes:

- **Letter(s) of Introduction:** This letter should be written by a respected business person who knows you well enough to introduce you. The aim of this letter is set across your achievements and vouch for your character and integrity.
- **Your Profile:** This is basically your resume. You need to give the bank a good idea of your educational achievements, professional training, qualifications, employment record and achievements.
- **Business Brochure:** A business brochure typically provides information on company products, clients, how long the business has been running for etc.
- **Bank and Other References:** If you have an account with another bank, providing those bank references is a good idea.
- **Proof of Company Ownership or Registration:** In some cases, you may need to provide the bank with proof of company ownership and registration. A list of assets and liabilities may also be required.

Financial Situation

Banks will expect current financial information on your enterprise. The standard financial reports you should be prepared with are:

- Balance Sheet
- Cash-Flow Statement
- Business Plan
- Profit-and-Loss Account
- Projected Sales and Revenues
- Feasibility Study

Guarantees or Collaterals

Usually banks will refuse to grant you a loan without security. You can offer assets which the bank can seize and sell off if you do not repay the loan. Fixed assets like machinery, equipment, vehicles etc. are also considered to be security for loans.

6.6.5.2 The Lending Criteria of Banks

Your request for funding will have a higher chance of success if you can satisfy the following lending criteria:

- Good cash flow
- Adequate shareholders' funds
- Adequate security
- Experience in business
- Good reputation

The Procedure

To apply for funding the following procedure will need to be followed.

- Submit your application form and all other required documents to the bank.
- The bank will carefully assess your credit worthiness and assign ratings by analysing your business information with respect to parameters like management, financial, operational and industry information as well as past loan performance.
- The bank will make a decision as to whether or not you should be given funding.

Tips

- Get advice on funding options from experienced bankers.
- Be cautious and avoid borrowing more than you need, for longer than you need, at an interest rate that is higher than you are comfortable with.

6.6.6 Enterprise Management - An Overview

To manage your enterprise effectively you need t o look at many different aspects, right from managing the day-to-day activities to figuring out how to handle a large-scale event. Let's take a look at some simple steps to manage your company effectively.

Step 1: Use your leadership skills and ask for advice when required.

Let's take the example of Ramu, an entrepreneur who has recently started his own enterprise. Ramu has good leadership skills – he is honest, communicates well, knows how to delegate work etc. These leadership skills definitely help Ramu in the management of his enterprise. However, sometimes Ramu comes across situations that he is unsure how to handle. What should Ramu do in this case? One solution is for him to find a more experienced manager who is willing to mentor him. Another solution is for Ramu to use his networking skills so that he can connect with managers from other organizations, who can give him advice on how to handle such situations.

Step 2: Divide your work amongst others – realize that you cannot handle everything yourself.

Even the most skilled manager in the world will not be able to manage every single task that an enterprise will demand of him. A smart manager needs to realize that the key to managing his enterprise lies in his dividing all his work between those around him. This is known as delegation. However, delegating is not enough. A manager must delegate effectively if he wants to see results. This is important because delegating, when done incorrectly, can result in you creating even more work for yourself. To de legate effectively, you can start by making two lists. One list should contain the things that you know you need to handle yourself. The second list should contain the things that you are confident can be given to others to manage and handle.

Besides incorrect delegation, another issue that may arise is over-delegation. This means giving away too many of your tasks to others. The problem with this is, the more tasks you delegate, the more time you will spend tracking and monitoring the work progress of those you have handed the tasks to. This will leave you with very little time to finish your own work.

Step 3: Hire the right people for the job.

Hiring the right people goes a long way towards effectively managing your enterprise. To hire the best people suited for the job, you need to be very careful with your interview process. You should ask potential candidates the right questions and evaluate their answers carefully. Carrying out background checks is always a good practice. Running a credit check is also a good idea, especially if the people you are planning to hire will be handling your money. Create a detailed job description for each role that you want filled and ensure that all candidates have a clear and correct understanding of the job description. You should also have an employee manual in place, where you put down every expectation that you have from your employees. All these actions will help ensure that the right people are approached for running your enterprise.

Step 4: Motivate your employees and train them well.

Your enterprise can only be managed effectively if your employees are motivated to work hard for your enterprise. Part of being motivated involves your employees believing in the vision and mission of your enterprise and genuinely wanting to make efforts towards pursuing the same. You can motivate your employees with recognition, bonuses and rewards for achievements. You can also motivate them by telling them about how their efforts have led to the company's success. This will help them feel pride and give them a sense of responsibility that will increase their motivation. Besides motivating your people, your employees should be constantly trained in new practices and technologies. Remember, training is not a one -time effort. It is a consistent effort that needs to be carried out regularly.

Step 5: Train your people to handle your customers well.

Your employees need to be well-versed in the art of customer management. This means they should be able to understand what their customers want, and also know how to satisfy their needs. For them to truly understand this, they need to see how you deal effectively with customers.

This is called leading by example. Show them how you sincerely listen to your clients and the efforts that you put into understand their requirements. Let them listen to the type of questions that you ask your clients so they understand which questions are appropriate.

Step 6: Market your enterprise effectively.

Also, hire a marketing agency if you feel you need help in this area. Now that you know what is required to run your enterprise effectively, put these steps into play, and see how much easier managing your enterprise becomes!

Tips

- Get advice on funding options from experienced bankers.
- Be cautious and avoid borrowing more than you need, for longer than you need, at an interest rate that is higher than you are comfortable with.

6.6.7 Considering Entrepreneurship

Questions to ask yourself before considering entrepreneurship.

1. Why am I starting a business?
2. What problem am I solving?
3. Have others attempted to solve this problem before? Did they succeed or fail?
4. Do I have a mentor1 or industry expert that I can call on?
5. Who is my ideal customer2?
6. Who are my competitors3?
7. What makes my business idea different from other business ideas?
8. What are the key features of my product or service?
9. Have I done a SWOT4 analysis?
10. What is the size of the market that will buy my product or service?
11. What would it take to build a minimum viable product5 to test the market?
12. How much money do I need to get started?
13. Will I need to get a loan?
14. How soon will my products or services be available?
15. When will I break even6 or make a profit?
16. How will those who invest in my idea make a profit?
17. How should I set up the legal structure7 of my business?
18. What taxes8 will I need to pay?
19. What kind of insurance9 will I need?
20. Have I reached out to potential customers for feedback

Tips

- It is very important to validate your business ideas before you invest significant time, money and resources into it.
- The more questions you ask yourself, the more prepared you will be to han dle to highs and lows of starting an enterprise.

Footnotes:

1. A mentor is a trusted and experienced person who is willing to coach and guide you.
2. A customer is someone who buys goods and/or services.
3. A competitor is a person or company that sells prod ucts and/or services similar to your products and/or services.
4. SWOT stands for Strengths, Weaknesses, Opportunities and Threats. To conduct a SWOT analysis of your company, you need to list down all the strengths and weaknesses of your company, the opportu nities that are present for your company and the threats faced by your company.
5. A minimum viable product is a product that has the fewest possible features, that can be sold to customers, for the purpose of getting feedback from customers on the product.
6. A company is said to break even when the profits of the company are equal to the costs.
7. The legal structure could be a sole proprietorship, partnership or limited liability partnership.
8. There are two types of taxes – direct taxes payable by a person or a co mpany, or indirect taxes charged on goods and/or services.
9. There are two types of insurance – life insurance and general insurance. Life insurance overs human life while general insurance covers assets like animals, goods, cars etc.

Notes

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