MASTER OF ARTS MASS COMMUNICATION AND JOURNALISM

CENTRE FOR OPEN AND DISTANCE LEARNING (CODL)

MMC 202: RADIO BROADCASTING

BLOCK I

CENTRE FOR OPEN AND DISTANCE LEARNING
TEZPUR UNIVERSITY (A CENTRAL UNIVERSITY)
TEZPUR, ASSAM - 784028
INDIA

Vision

To grow to be a leading centre for human resource development through distance, open and universal learning system.

Mission

To provide quality higher education at door step through barrier-less, flexible and open learning mode in conformity with national priority and societal need.

Objective

- **To offer degree, diploma, certificate level programme of study through distance learning in various emerging subjects across the disciplines.**

- **To offer job oriented and vocational programmes in flexible terms in the line of the national and regional level demand of manpower.**

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- **To undertake various research and academic activities for furtherance of distance education in the region.**

- **To contribute to conserve and promote cultural heritage, literature, traditional knowledge and environment conducting short programmes, workshops, seminars and research in interdisciplinary field.**

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MMC-202: RADIO BROADCASTING

ADVISORY COMMITTEE

Dr. Joya Chakraborty	Associate Professor & Head, Department of Mass Communication and Journalism, Tezpur University
Dr. P. Anbarasan	Associate Professor, Department of Mass Communication and Journalism, Tezpur University
Dr. Uttam Kumar Pegu	Associate Professor, Department of Mass Communication and Journalism, Tezpur University
Ms. Madhusmita Boruah	Assistant Professor, Mass Communication, Centre for Open and Distance Learning, Tezpur University

CONTRIBUTOR

Module I & II	Prof. Abhijit Bora	Professor, Dpt. of Mass Communication and Journalism Tezpur University
	Dr. P. Anabarasan	Associate Professor, Dpt. of Mass Communication and Journalism Tezpur University
	Ms. Ankita Gogoi	Assistant Professor, Dept. of Mass Communication, Assam Women's University
	Mr. Mrinmoy Buragohain,	Assistant Professor, Centre for Studies in Journalism and Mass Communication, Dibrugarh University
	Mr. Nayan Jyoti Nath,	Lecturer, BITS Pilani
	Ms. Ujjaini Chakrabarty	Research Scholar, Dpt. of Mass Communication and, Tezpur University

EDITOR

Dr. Ankuran Dutta — Associate Professor, Head of the Department, Department of Communication and Journalism, Gauhati University

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BLOCK I

TABLE OF CONTENT

COURSE INTRODUCTION

In this course, Radio broadcasting (MMC 202) you will understand the different dimensions of radio as a medium of mass communication. Along with the practical aspects of radio broadcasting, this course aims to teach you about the different concepts related to radio. For instance, it includes descriptions of radio broadcasting formats, types of radio broadcasting such as community radio, ham radio, etc. This course is divided into two blocks (**Block I** & **Block II**) and each block includes two modules.

The **Block I** comprises **Module I** and **Module II** which further contain topics such as Growth of Radio and Radio Broadcasting respectively. The **Module I** includes four units which are based on topics including Evolution of Radio worldwide and in India (Unit 1), Radio in North East of India (Unit 2), Characteristics of Radio (Unit 3) and Technology of Radio broadcasting (Unit 4).

On the other hand **Module, II** combines three units which emphasise on radio broadcasting formats. Unit 5 deals with formats of radio broadcasting (Spoken) and Unit 6 is about radio broadcasting format (Music). The last unit of this module describes different organisational structures which are related to the functions and operations of radio broadcasting in India. For example, from this unit, you will know about Ministry of Information and Broadcasting, India organizational Structure of All India Radio, etc.

In **Block II,** the **Module III** and **Module IV,** are focusing on types of radio broadcasting and radio programmes respectively. Types of radio broadcasting you will know- Community radio stations (Unit 8), Ham radio (Unit 9), FM Radio Stations(Unit 10) and Internet Radio (Unit 11). In **Module IV**, it comprises topics like writing for radio (Unit 12), sound recording (Unit 13) and news and educational programme (Unit 14). From this module you will learn how to write for radio, for example, writing for

commercials, public service announcements, promotions, documentaries, etc. Unit 13 of this module discusses about sound recording for radio broadcasting which includes topics such as room acoustics and sound treatment, digital radio workstations, studio recording, off-air and on-air studio, audio mixer console, sound effects, etc. The last unit of this course will teach you about different news bulletin structure, interview, and discussion, farm and agricultural broadcasting, phone-in-programme, etc.

MODULE I: GROWTH OF RADIO

UNIT 1: EVOLUTION OF RADIO WORLDWIDE AND IN INDIA

UNIT STRUCTURE

1.1: INTRODUCTION

One of the most popular media of communication, Radio is often referred to as 'people's media'. There is no doubt that Radio is one of the most important inventions of the 20th century which has changed the scenario of broadcast media worldwide.

With roots in the telegraph, Radio uses electromagnetic waves for transmission through the air. There are two types of radio broadcasting – AM (Amplitude Modulation) and FM (Frequency Modulation).

The strength of Radio lies in its cost-effectiveness. It is an affordable mass communication medium as well as easy to handle. Radio as a medium of communication has the benefit of extensive reach and mobility. However, it has the issue of cluttered information attributed to its programmes, which sometimes lead to confusion among listeners. This unit is based on the history of the growth of media worldwide with special reference to India.

1.2: OBJECTIVES

A thorough study of this unit shall enable you to:

- Explain the history of radio broadcasting worldwide and in India
- Write radio's role in pre-independent and independent India.
- Describe Radio's significance as a broadcast medium.

1.3: INVENTION OF RADIO

Radio follows its development to two other inventions, the telegraph, and the telephone, all three technologies are closely related. Radio technology began as "wireless telegraphy". Radio can refer to either the electronic appliance that we use to programmes listen or the content listened to. However, it all started with the discovery of "radio waves" - electromagnetic waves that have the capacity to transmit music, speech, pictures and other data invisibly through the air. Many devices work by using electromagnetic waves including radio, microwaves, cordless phones, remote-controlled toys, television broadcasts, and more.

During the 1860s, Scottish physicist, James Clark Maxwell predicted the existence of radio waves; and in 1886, German physicist, Heinrich Rudolph Hertz demonstrated that rapid variations of electric current could be projected into space in the form of radio waves similar to those of light and heat. In 1866, Mahlon Loomis, an American dentist, invented the Wireless Telegraph and he was able to make a meter connected to one kite cause another one to move, marking the first known instance of wireless aerial communication. Subsequently, Loomis received US patent for it in 1872; this was a pioneering event in the journey of radio broadcasting. In 1891, Nikola Tesla transmitted the first radio signal and subsequently, in 1895, Italian inventor G Marconi invented the first radio equipment and transmitted

radio signals. In 1895, Sir J. C. Bose also gave his first public demonstration of electromagnetic waves.

Guglielmo Marconi, an Italian inventor, proved the feasibility of radio communication. He sent and received his first radio signal in Italy in 1895. By 1899 he flashed the first wireless signal across the English Channel and two years later received the letter "S", telegraphed from England to Newfoundland. This was the first successful transatlantic radiotelegraph message in 1902.

In addition to Marconi, two of his contemporaries Nikola Tesla and Nathan Stuffle field took out patents for wireless radio transmitters. Nikola Tesla is now credited with being the first person to patent radio technology; the Supreme Court overturned Marconi's patent in 1943 in favour of Tesla.

Radio-telegraphy is the sending by radio waves the same dot-dash message (morse code) used in a telegraph. Transmitters at that time were called spark-gap machines. It was developed mainly for ship-to-shore and ship-to-ship communication. This was a way of communicating between two points, however, it was not public radio broadcasting as we know it today. Wireless signals proved effective in communication for rescue work when a sea disaster occurred. A number of ocean liners installed wireless equipment. In 1899 the United States Army established wireless communications with a lightship off Fire Island, New York. Two years later the Navy adopted a wireless system. Up to then, the Navy had been using visual signaling and pigeons for communication.

In 1901, radiotelegraph service was instituted between five Hawaiian Islands. By 1903, a Marconi station located in Wellfleet, Massachusetts, carried an exchange or greetings between President Theodore Roosevelt and King Edward VII. In 1905 the naval battle of Port Arthur in the Russo-Japanese war was reported by wireless, and in 1906 the U.S. Weather Bureau experimented with radiotelegraphy to speed notice of weather conditions. In 1909, Robert E. Peary, Arctic explorer, radiotelegraphed: "I found the Pole".

In 1910 Marconi opened regular American-European radiotelegraph service, which several months later, enabled an escaped British murderer to be apprehended on the high seas. In 1912, the first transpacific radiotelegraph service linked San Francisco with Hawaii.

Overseas radiotelegraph service developed slowly, primarily because the initial radiotelegraph transmitter discharged electricity within the circuit and between the electrodes was unstable causing a high amount of interference. The Alexanderson high-frequency alternator and the DeForest tube resolved many of these early technical problems.

Lee DeForest invented space telegraphy, the triode amplifier and the Audion. In the early 1900s, the great requirement for further development of radio was an efficient and delicate detector of electromagnetic radiation. Lee DeForest provided that detector. It made it possible to amplify the radio frequency signal picked up by the antenna before application to the receiver detector; thus, much weaker signals could be utilized than had previously been possible. DeForest was also the person who first used the word "radio". The result of Lee DeForest's work was the invention of amplitude-modulated or the AM radio that allowed for a multitude of radio stations. The earlier spark-gap transmitters did not allow for this.

When the United States entered the First World War in 1917, all radio development was controlled by the U.S. Navy to prevent its possible use by enemy spies. The U.S. government took over control of all patents related to radio technology.

In 1919, after the government released its control of all patents, the Radio Corporation of America (RCA) was established with the purpose of distributing control of the radio patents that had been restricted during the war.

1.4: HISTORY OF RADIO BROADCASTING WORLDWIDE

In 1906, scientist Fessenden and Lee de Frost carried out the world's first radio broadcast on Christmas Eve. Lee de Frost, around 1910, used wireless telegraphy to cover a live performance in New York and sent it to a large audience who were absent during the shoot. Once radio broadcasting was launched, people began to realise its significance and how the new medium can be utilised to the fullest.

In 1915, the speech was first transmitted across the continent from New York to San Francisco and across the Atlantic Ocean from Naval radio station NAA at Arlington, Virginia, to the Eiffel Tower in Paris.

On November 2, 1920, Westinghouse's KDKA-Pittsburgh broadcast the Harding-Cox election returns and began a daily schedule of radio programmes.

The first ship-to-shore two-way radio conversations occurred in 1922, between Deal Beach, New Jersey, and the S.S. America, 400 miles at sea. However, it was not until 1929 that high seas public radiotelephone service was inaugurated. At that time telephone contact could be made only with ships within 1,500 miles of shore. Today there is the ability to telephone nearly every ship wherever it may be on the globe.

In 1919, the Radio Corporation of America (RCA) was formed to manage the patents for radio transmitter and receiver technology. But it was only after World War I that radio was considered for mass media. During World War I, there was a significant improvement in radio broadcasting. The US Navy realised the power of radio and started to work on it.

First radio stations were set up in – Pittsburgh, New York, Chicago – primarily for educational purposes.

In 1922, another element entered the scenario – *broadcast advertising.* What was originally known as 'toll broadcast' is today called '*commercial*'. In mid

1923, there were around 450 radio stations in the United States. Later in 1926, these radio stations were brought together under the roof of government-run NBC (National Broadcasting Company).

The Radio Act of 1927 transferred most of the responsibility to the newly created FRC (Federal Radio Commission), which was given the power to grant or deny licences for transmitting and assign frequencies to each license issued. The Communications Act (1934) replaced the FRC with the FCC (Federal Communications Commission).

Europe came up with the BBC (British Broadcasting Corporation) in Britain. BBC world service and Radio France also started service in Asia and Africa. The first radio broadcast by BBC was in 1922. (Back then, it was the British Broadcasting Company; it became the British Broadcasting Corporation in 1927).

Commercial radiotelephony linking North America with Europe was opened in 1927, and with South America three years later. In 1935 the first telephone call was made around the world, using a combination of wire and radio circuits. Edwin Howard Armstrong invented frequency-modulated or FM radio in 1933. FM improved the audio signal of radio by controlling the noise static caused by electrical equipment and the earth's atmosphere. Until 1936, all American transatlantic telephone communication had to be routed through England. In that year, a direct radiotelephone circuit was opened to Paris. Telephone connection by radio and cable is now accessible with 187 foreign points.

Radio technology has grown significantly since its early development. In 1947, Bell Labs scientists invented the transistor. The first transistor radio came in 1954 introduced by a then small Japanese company called Sony.

In 1965, the first Master FM Antenna System in the world designed to allow individual FM stations to broadcast simultaneously from one source was erected on the Empire State Building in New York.

During World War II, nine in ten American families owned a radio, which became their primary source of news. When television became affordable during 1948-50, a slow decline was seen in the popularity of radio. But, with the coming of the 1990s, the internet radio was born and people could listen to whatever they wanted, whenever they wanted. According to UNESCO, at least 75% of households in developing countries today have access to radio and there are around 44,000 radio stations worldwide.

1.5: HISTORY OF RADIO BROADCASTING IN INDIA

In India, broadcasting was initiated by some amateur clubs in Calcutta, Bombay, Madras, and Lahore during the period of 1920-23. However, the first person to demonstrate the use of radio waves publicly was physicist Jagdish Chandra Bose. Bose publicly demonstrated the use of radio waves for the first time in November 1894 in Calcutta. The Madras Radio Club which is also known as Madras Presidency Radio Club started broadcasting on 31 July, 1924 with a 40-watt transmitter. Later, it broadcast with a 200-watt transmitter, for 2 hours every evening. But it closed down due to financial difficulties. The Madras Corporation re-started the broadcast service in1930.

Regular broadcasting in India was started by the Indian Broadcasting Company (IBC) in 1927. Bombay and Calcutta stations were inaugurated in July and August, 1927. The first radio programme journal India Radio Times was started on July 15, 1927. Its name was later changed to The India Listener and again to Akashvani, IBC was a financial failure in spite of a loan from the government. It went into liquidation and was closed down in March, 1930. Under pressure from the radio-set dealers, programmers and the general public, the government took over the Bombay and Calcutta stations in April, 1930. The Indian Broadcasting Service was formed. Those were the days of worldwide depression. The government too faced financial

difficulties. Even otherwise, it was not very enthusiastic about broadcasting. So, it ordered the closure of the Indian Broadcasting Service on Oct.10, 1931. Representations and agitations compelled the government to reverse the orders on. November 23, 1931. The Government doubled the duty on radio sets. In 1932, the British Broadcasting Corporation (BBC) started an Empire Service.

The ISBS (Indian State Broadcasting Service) was then formed by the British Government around 1927 with Lionel Fielden as its first controller. In June, 1936, ISBS was given the name All India Radio by Lionel Fielden with the consent of the then Viceroy of India Lord Linlith Glow. He persuaded the government to realise the potential of broadcasting and allot more money to the service. In his autobiography, The Natural Bent, he writes about financial problems and red-tapism. He also gives an interesting account of how he could persuade the then Viceroy to adopt the name All India Radio for the broadcasting service. The name was adopted from June 8. 1936. Fielden got together a group of devoted young people. With the help of these and of Goyder, his Chief Engineer, he started short-wave service in 1938, to cover the entire country.

Lucknow station went on air on April 2, 1938, and Madras on June 16 cover 1938, next year the External Service Division at Delhi was started. A.S. Bokhari, another dynamic administrator, took over from Fielden to become the first Indian Director General. He was the chief during all the war years and thereafter till the partition. A new Broadcasting House was built on Parliament Street, New Delhi. On June 3, 1947 Lord Mountbatten (the Viceroy), Jawaharlal Nehru and Mohd. Ali Jinnah made historic broadcasts on the partition of India. In midnight on August 14-15, 1947, Nehru broadcast his famous speech "Tryst with Destiny". It is preserved in the AIR archives.

There were nine AIR stations in India, but following the country's partition, AIR had only six radio stations in independent India viz. Delhi, Bombay,

Calcutta, Madras, Lucknow and Tiruchirapalli and three went to Pakistan – Lahore, Peshawar and Dacca. When the princely states became a part of India, five more stations (Hyderabad, Aurangabad, Baroda, Mysore and Trivandrum) were taken over by AIR.

On September 03, 1942, the young congress freedom fighters launched the *Congress Radio.* It could not work for a long time as the British caught hold of the radio station and freedom fighters on November 11, 1942.

During the time of independence, AIR had a network of six stations and there were only 18 transmitters and 2,50,000 receiver sets in India. After a couple of years, 25 stations started functioning. It may be mentioned here that AIR is presently one of the largest media organisations in the world.

During the First Five Year Plan (1951-56) much development of broadcasting took place and six new radio stations were set up. In 1952, the first National Orchestra was set up with Pandit Ravi Shankar as its conductor. Regional news bulletins in Hindi and Marathi were started in 1953 from Lucknow and Nagpur respectively. The first National programme of Talks too went on the air in 1953. In 1955 the first Radio Sangeet Sammelan was broadcast. The same year the Sardar Patel Memorial Lectures and Radio Newsreel were started. In 1956, the first National Symposium of Poets war broadcast and also the National Programme of Plays, Operas and Features. By the end of the first plan, the number of radio stations had increased to 26. Dr. B.V. Keskar, the Minister for Information and Broadcasting (1953-61), did a lot for Indian classical music. He also brought eminent writers, poets, musicians and playwrights on contract as Producers.

On October 02, 1957, commercial channel Vividh Bharati was introduced under All India Radio. After 10 years, in 1967, commercials started airing in the channel. Also, in 1967, the nine-point code for individual broadcasters was introduced.

On July 23, 1969, ***Yuv Vani*** or the voice of the youth went in the air from New Delhi.

In 1976, Television was formally separated from Radio. Till then, Doordarshan was a wing of All India Radio. In July, 1977, FM transmitters were commissioned in Madras and later at Jalandhar in 1992. It was after the economic reforms of 1991 that the FM broadcasting was also opened for private entities. 1991 marked a significant transition in the Indian broadcasting scenario with the advent of the policies of Liberalisation, Privatisation and Globalisation (LPG). These reforms allowed private players to participate in the media industry like never before.

Also in 1977, the BG Verghese committee was also set up to ensure free, fair and objective functioning of the AIR and Doordarshan.

On April 01, 1994, Sky Radio became operational. India experimented with FM broadcast in the mid-nineties in Delhi, Chennai, Mumbai, Kolkata and Goa followed by stations in Bengaluru, Hyderabad, Jaipur and Lucknow.

In 1995, the Supreme Court of India passed an order that airwaves are public property. Subsequently, in 1997, the Prasar Bharati Bill was passed in the Parliament under the Prasar Bharati Act (1990). This bill granted autonomy to AIR and it became an autonomous body under Prasar Bharati.

India's first campus radio "Anna FM" became operational on February 01, 2004 at Anna University, Chennai.In December, 2004, then Prime Minister Dr. Manmohan Singh inaugurated DTH service of AIR and Doordarshan.

India's first community radio "Sangham Radio", licensed to the Deccan Development Society in Andhra Pradesh went on air in 2008 and still continues to broadcast. PM Narendra Modi's programme 'Mann Ki Baat' started in 2004, in which the PM addresses the people of the nation.

AIR today is a national service planned, developed and operated by Prasar Bharati. Present-day, AIR reaches more than 99% of India's landmass.

FM service of AIR has two channels – FM Rainbow and FM Gold.

1.6 SUMMING UP

Radio is one of the most popular forms of mass media and in India reaches more than 90% of the total geographical area. Starting from its invention, the radio as a tool of mass media has seen numerous developments including ones in technicalities. Today's scenario, with community radio, campus radio and internet radio among others, has a vast difference with what was in the beginning. A medium still preferred by many and a recent surge in the number of listeners, it would not be an understatement to say that Radio shall always be among the mass. What development awaits next is something to watch out for.

1.7 QUESTIONS

1. Discuss the invention and evolution of Radio.
2. Track the evolution of Radio in India post-independence
3. .Line out the possibilities that Radio has as a tool of mass media in the days to come.
4. How do you think the scenario of broadcast media be devoid Radio?

1.8 REFERENCE AND RECOMMENDED READINGS

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UNIT 2: RADIO IN NORTH-EAST INDIA

UNIT STRUCTURE

2.1 INTRODUCTION

The North-eastern Region (NER) has been a pioneer in the field of radio broadcasting with the first-ever station of the region set up as All India Radio (AIR) Shillong-Guwahati on July 1, 1948. It needs to be mentioned at this point that during those days the whole of the NER was a single state - Assam. During this long journey radio, primarily the AIR has made an invaluable

contribution to this region in almost each and every walk of life. This service was not only confined to music, culture, entertainment and news. It also included programmes and advises on various aspects of life helping the people to enhance their living standards over the decades in a gradual and steady manner. This medium has been integrally associated with society here like many other places of the country and the world. Thus, it is necessary to know about the expanse of the medium in the region. It is also important to look for and explore how this medium can be of more and better service in the near and distant future.

2.2 OBJECTIVES

Once you have studied this unit, you will be able to –

- Describe the overall growth and evolution of radio in the north-eastern region
- Explain radio's contribution to the society of the region
- Describe about different activities and programmes are undertaken for the promotion and preservation of the culture of the region
- Explain how the medium acted as a bridge among the big number of communities spread across this region with a good amount of difficult terrains
- Identify how radio acts as a means of being the only convenient medium at times of crisis like natural disasters and other problems

2.3 HISTORY OF RADIO BROADCASTING IN NORTH-EAST

As already mentioned the radio sector in the region was pioneered by the AIR station Shillong-Guwahati way back in 1948, within a year of the country's Independence. This step ushered in a new era of immense potential and hopes for the medium and also for the region – 'undivided Assam' that included all the seven adjacent states (except Sikkim) at that point of time.

"In an attempt to make this medium more inclusive in the immediate aftermath of Independence, the then Union government has decided to set up 11 AIR stations across the country in a span of three years and Guwahati station materialized as part of this plan." (Editorial, AIR-Dibrugarh Souvenir, 2019).

As Shillong was the capital of the state till 1972, it is natural that the first radio station of the region was slated for this city. However, popular demands resulted in setting up two stations – one each in both the cities. With a lot of hopes for the newly-independent people of the region, the Shillong-Guwahati station was formally inaugurated on July 1st, 1948 – a landmark day for the region. Late Mehera Masani was the first Station Director of the Station (AIR Guwahati website).

In the beginning, several legendary figures were involved with the establishment of the station like Ubaidul Latif Barua, Syed Abdul Malik, Bhupen Hazarika among others. Barua later went on to become Director General of AIR at Delhi, the first ever honour for a person of this region till date.

In the beginning, the station had two transmissions daily, morning for one and the half hour duration (7.00 am - 8.30 am) and evening (5.00 - 9.15 pm). Broadcasting was done from two studios - one in Shillong and one in Guwahati through a One KW MW transmitter. The Station Director at Shillong was the overall head of the Shillong Guwahati Station. In 1953 the power of the station was increased with the installation of a 10 KW MW Transmitter at Jalukbari near Gauhati University. This had enabled the station to be able to increase its coverage area to Kamrup, Nagaon and other nearby districts. In the same year, the head office of the station was shifted from Shillong to Guwahati. In May, 1957 it was shifted to its present permanent campus at Chandmari of Guwahati. The following year the power of the station was augmented by the commissioning of a 10 KW SW Transmitter. This had allowed the station's broadcasts to reach the whole of

Assam. At present AIR Guwahati has three channels - A & B (AM) and the CBS (FM) Channels. (AIR-Guwahati website).

After the AIR stations at Guwahati and Shillong were set up, the next and third important station in terms of coverage was the AIR Dibrugarh set up on February 15th, 1969. This was another landmark step for the medium as it was set up to serve the whole of the upper Assam area along with many places of Arunachal Pradesh.

The years and decades passed on and on. There was a growth of population and re-alignment of erstwhile 'undivided Assam' into seven full-fledged states and Sikkim was included in the NER in the later parts. Thus the government has decided to set up more stations for expanding the service to maximum possible number of people.

The concept of narrowcasting as against broadcasting is also applicable here. That is, it is not wise to serve a too huge population without being able to provide quality content and adequate time. It is always better to serve a small target audience and serve with a better quality of contents, service and time slots.

Besides, with the bifurcation of the states, political and state-wise priorities and aspirations of people of these places have also become different, requiring separate stations for meeting these necessities.

Thus today we have 34 main stations across the NE region boosted by a network of 89 relay transmission centres for carrying the messages to the farthest corners of NER. The table no I below explains the expanse of the network in the region dedicated to the service of the people in this landmass.

2.3.1 Health workers and radio broadcasting

For a region with difficult geographical terrains, this medium has proved to be a lifeline on numerous occasions. Be it the news or programmes on

improving ways of life by its various programmes on agriculture, hygienic way of life, etc.

In the year 2009, the state government of Assam has allotted one radio transistor system to the majority of the ASHA workers who are the primary point of contact for the downtrodden and less-privileged female members of the society. The idea was to alert the ASHA workers about the new schemes and guidelines on various emerging health issues and developments. This is to make them aware of the schemes and then pass on the benefits to those at the grassroots level. This again emphasizes the importance of this medium for states or regions like NER. ASHA is the abbreviated form of Accredited Social Health Activist and they are the frontline health workers of the society for facilitating the needy persons towards various welfare schemes.

2.3.2 Radio stations in the region

Table no I : Radio stations in the North-East Region ---

States	No of stations	LRS	CRS	Relay centre
Arunachal Pradesh	5	1		28
Assam	9	4		13
Manipur	2	1		6
Meghalaya	5		2	2
Mizoram	3		1	7
Nagaland	4	1	2	6
Sikkim	1			15

Tripura	5	2		12
Grand total	34	11	5	89

Source – www.allindiaradio.gov.in

Here, LRS means Local Radio Station with lower coverage and CRS means Community Radio Station. Although the AIR claims these stations as Community Radio Stations, however by the concept of CRS it's difficult to accept all these stations as CRS, because they are own by the public service broadcaster not by any community.

The major radio stations of the region are ---

Assam – Guwahati, Dibrugarh, Diphu, Nagaon, Kokrajhar, Silchar (1972), Haflong, Jorhat (1991), Tezpur

Arunachal Pradesh – Itanagar (1986), Passighat (1962), Tawang (1973), Tezu (1967), Zero,

Manipur – Imphal (1963), Churachandpur,

Meghalaya – Shillong, Jowai, Tura, Williamnagar (CRS), Tura (CRS, 1984),

Mizoram – Aizwal, Lunglei, Saiha (CRS),

Nagaland – Kohima (1963), Mokokchung, Mon (CRS), Tuensang (CRS),

Tripura – Agartala (1967), Belonia, Kailashahar,

Sikkim – Gangtok,

These stations are adequately supported by about 90 relay transmission centres for carrying the voice of the medium to the last point of the frontier for reaching out to the maximum possible number of listeners.

According to an expert in this field, the Chinese aggression of 1962 had necessitated a rather faster expansion of the radio services in the region. Hence, several stations were set up in remote areas of the region in the next few years following 1962.

It should be noted here that the stations termed as CRS in the list are actually Community Radio Stations. It is not widely known to many people that All India Radio established these CRS on an experimental basis even long before the Community Radio movement in the country began around the late 1990s

of the last century. About CRs we shall discuss towards the later part of this unit in detail.

2.3.3 Radio and cultural promotion in NER

Radio has been offering yeoman's service for the development of the overall cultural aspects of the societies across these eight states over the decades. Some of these services include – providing airtime to various forms of local music which maybe folk, traditional, contemporary etc. and a platform for the upcoming youths for airing their talents in different fields.

AIR's cultural role is obvious in the manner it has popularized music. It has influenced the growth of regional languages and literature, particularly prose and drama. Radio has provided encouragement to folk and regional music and served linguistic and ethnic minorities by providing special programmes for them (Baruah, 1982).

Out of the serious efforts for the collection and preservation of folk music 20 AIR stations all over the nation were identified for the task. These stations included – Dibrugarh, Imphal, Kohima from NER.

It is worth mentioning that AIR by its policy of promotion of local language and culture provides this platform for the broadcasting of programmes on different dialects, languages. Some of these languages even may not be in the list of Schedule VIII of the Constitution of India that includes the officially-recognized languages of the country. Yet, in a practice with far-reaching positive development, programmes in these languages and dialects are also broadcast which gives a new boost to them in terms of reach and conservation.

Besides, educational programmes for different age groups is a mandate for AIR stations. Thus, AIR Guwahati station especially has been continuing a very popular programme for school children called 'Vidyarthir Anusthan' for several decades now with a high degree of popularity and success. Many

of the schools make arrangements for a general listening of this programme during school time in their auditoriums whenever possible.

It is also a regular feature of AIR stations that they do organize cultural programmes on different occasions in public places like local auditoriums from time to time. In these programmes, their empanelled as well as other artistes are invited for performance and entertainment to the public. This activity further brings the public and the medium more closure for a meaningful and sustainable relationship for the future.

2.3.4 Radio ownership pattern in NER

In terms of the popularity of radio in the region, let us look at an interesting and important development here.

The India Census 2011 has demonstrated that the percentage of households owning at least one set of radio receiver sets all over the country has gone down in a big number. That is, from an impressive 35.1 % by India Census 2001, it went down to 19.9 % in the recent census (2011). There is a variation of course in rural and urban numbers. That is, in rural areas the drop is about 15 % from 31.5 to 17.3 % while in urban areas it is about 20 % from 44.5 % to 25.3 % (Bora, 2017).

In contrast to this overall development, Manipur has shown a very different trend. The number of radio set ownership in this state has actually gone up beating the national trend while at the same time growth of TV ownership showed a downward trend in this period.

As against this, Census 2001 data showed that radio listenership in Assam registered a healthy growth among the people who listened to a radio programme at least once a week. The percentage of people listening to radio programmes at least once a week in that period varied between 36.1 % to a maximum of 45 % - a decently steady enough status.

Compared with the backdrop of the stiff competition from all other media, this is commendable that radio had maintained its status even with some amount of loss of ground. (Table no II).

Table II : **Ownership of at least one radio transmitter by households in Assam (2001)**

Assam	Total no. of households	Availability of assets		Percentage of population	
		Radio transistors	Television	Radio transistors	Television
Total	49,35,358	14,89,742	90,3126	30.2	18
Rural	42,20,173	12,07,270	5,08,212	28.6	12
Urban	7,15,185	2,82,472	3,94,914	39.5	55

Source : India Census 2001

2.3.5 Radio News in NER

This is one of the most popular and coveted services of AIR in this region. The AIR stations at all the capital cities of the region have Regional News Units (RNUs). They are part of the News Services Division (NSD) of AIR with its head offices in Delhi. These RNUs carry out several important functions including preparing news bulletins in regional languages as well as providing important news feeds to the NSD head office for national-level news bulletins.

Radio news has a glorious past for the region with the first news bulletin broadcast from the Guwahati AIR station on May 15, 1957. Since then, the regional news bulletins in the morning, evening and night from this station have been the mainstay of news services for the region for many long decades.

At present, Shillong AIR station broadcasts North-East News for the region in English.

While earlier, national-level news bulletins in regional languages were broadcast from AIR, Delhi, now these bulletins are broadcast from the capital stations in the respective states. This in addition to the regional news bulletins and the weekly news highlights.

A strong core of regional correspondents and editors form the backbone of the country-wide network of radio journalists providing up-to-date news feeds round-the-clock, 365 days a year. Bigger states like Assam have two RNUs – Guwahati and Dibrugarh. The latter also broadcasts an Assamese news bulletin of five minutes' duration every day in addition to feeding news to the RNU Guwahati and NSD, Delhi.

The commitment of the medium for the languages of the country can be gauged from the fact that even today, the 44 RNUs across the nation broadcast 355 daily news bulletins in 67 languages. This includes those provided through FM 'Gold' channel from 22 AIR Stations in an exclusive basis. In addition to the core of regular journalists of NSD at various regional and frontier areas, Radio news also depends upon a well-functioning network of 'part-time correspondents' (PTCs) at so many places of importance from various aspects. They contribute news to the RNUs for onward transmission to state-level and national bulletins depending upon the merit of the news. Hence, we can say that the radio news network is in no way deficient in service compared to any other source of news. Rather, it is more prompt and timely in service always.

Besides, on any major event or news item, if and whenever needed, voice-over dispatch or additional news inputs in the voice of the radio journalist

are incorporated in the news bulletins. This is like giving a byline in a print news item which enhances the reputation of the newspapers.

Further, in a positive development, the Department of Information and Public Relations of the Assam government had taken up a special innovative scheme for providing news to the people even when one may not be at the comfort of one's home. This scheme had provided for installing loudspeakers at strategic public places in the market places, crossroads of urban areas etc. for playing news bulletins for public consumption. This is a unique way of reaching out to the people at their convenience.

It may be difficult to imagine or visualize the significance of news through the radio in today's circumstances. But if we go back to the good old days this was the only viable and reliable medium for accessing news across the country and the world. This is because at that point of time, there was hardly any newspaper available at a convenience facility like it is nowadays.

2.3.6 Radio and regional aspirations of NER

Ours being a big country by means of both population and geographical areas, the regional and local areas are of quite high importance for any developmental programme. For maintaining this aspect, AIR has provided for a three-tier broadcasting system – National, Regional and Local. The AIR website very aptly describes these three tiers in its own language as mentioned here.

Regional broadcasting is carried out by the regional stations in different states which make the middle tier of broadcasting. They originate programmes in the regional languages and dialects. Regional Channels are located in the major linguistic-cultural regions of every state. There are 116 Regional Channels spread over the whole country. This includes the North-Eastern Service at Shillong that projects the vibrant cultural heritage of this region. The regional channels, broadcast largely on the Medium Wave frequency, follow a composite programme pattern comprising music –

classical, light, folk and film, news and current affairs, radio plays, features, farm and home programmes, programmes on health & family welfare and programmes for woman, children etc. (AIR Website).

On the other hand, Local Broadcasting or Local Radio is relatively a newer concept of broadcasting in India. These stations serve small communities, showcasing local culture and broadcast area-specific programmes for the benefit of the community. The transmission is in the FM mode. The programming is flexible and spontaneous and the stations function as the mouthpiece of the local community. At present, there are 86 Local Stations spread across the country (AIR Website).

Many of you would be surprised to know that AIR Guwahati even published a journal called *Akashi* since 1959 as a bridge between the potential as well as actual listeners. This journal mainly contained articles, write-ups on different aspects of radio programmes written by prominent personalities involved with the medium. It was highly popular among the people and was published till about the late 1980s.

2.4 COMMUNITY RADIO STATIONS IN NORTH-EAST REGION

Community radio and television are private entities with public objectives. They are managed by various types of non-profit social organizations. Their fundamental characteristic is the participation of the community in ownership as well as programming, management, operation, financing and evaluation. They are independent and non-governmental media that do not depend on or are part of political parties or private firms (World Association of Community Radio Broadcasters - AMARC).

It needs to be recalled that in a landmark judgment in 1995 the Supreme Court of India had declared that airwaves were public property and could not be monopolized by any organization, agency including the government and must be kept open for participation and usage by organizations who may

intend to do so. So, the airwaves were opened for Community Radio stations (CRs) as well as the establishment of private FM stations soon after. CR is also mounted on the FM system only.

The Community Radio Facilitation Centre (CRFC), a unit of Ministry of Information & Broadcasting of Government of India informs that at present there are 436 CRs mainly at three different stages. First – operational, secondly those who have received Letter of Intent (LOI) and third – those who have signed the GOPA (Grant Of Permission Agreement). Out of these, operational CRs would be less than 250 all over the country.

The NER is lagging behind in this regard to some extent. That is, according to the CRFC list, only three CRs are operational in Assam while there are about 20 stations with LOI issued but yet to be able to make their stations operational. Out of these, 15 are in Assam itself while the rest belong to Manipur, Tripura and Arunachal Pradesh. The ones in Assam include several established colleges and other civil and voluntary organizations.

The operational CRs belong to Gauhati University, Krishna Kanta Handiqui State Open University (KKHSOU), Guwahati and Brahmaputra Community Radio station,Dibrugarh and Dibrugarh University. Jnan Taranga is considered as the first community radio service in North East that started on 28 January, 2009 with a permission of experimental broadcast (Dutta, A & Ray, A. 2010).

It is worth mentioning here that looking at the huge potential benefit of this medium the government of Assam had taken up a novel scheme for facilitating this movement in 2013. An agreement was signed between the Directorate of Information and Public Relations (DIPR) of Assam government and KKHSOU. The former was the funding agency for the project and the university who would have been the implementing agency.

The focus was to be on educational and training programmes for the unemployed youths in different localities, promotion of the folk culture of local communities etc. The project was to have been implemented in a phased manner for providing financial support from the state government for setting up the stations, preferably with colleges.

However, the scheme could not develop much for various factors. Yet it must be mentioned that it was an encouraging and positive development that could have brought in a lot of advantages if implemented in the proper manner as planned.

2.4.1 Campus Radio and CRs in NER

In this regard, this has to be mentioned that several of the applicants holding LOI for Community Radio stations are educational institutions. Besides, two of the three operational CRs are with universities which are institutions of higher education. These CRs actually can't be put in the same category as proper CRs. Rather, these should be called as Campus Radio or Campus Community Radio stations. This is because these are in reality not owned by a particular community for public purposes.

Of course Campus Community Radio stations are also serving the community and the public to a big extent. Yet not in the real sense of the term as they have to operate under various guidelines that are fully-oriented towards the uplift of the community where they are situated.

However, the Union Ministry of Information & Broadcasting (MIB) which is the authority for CRs in the country has not distinguished between CRs and Campus Community radio stations in all of its operational activities as well as the licensing process.

2.5 FM BROADCASTING IN NORTH-EAST REGION

This region has come of age with the activation of FM stations - both in the private sector as well as those under AIR. The major cities led by Guwahati,

Shillong and a few others have the privilege of availability of broadcasting services by several reputed private FM station chains in a competitive environment. The private FM stations are mostly providing entertainment programmes as they are not allowed to broadcast independent news and current affairs programme. The AIR FM stations are also providing a good service to the target audience. The private ones can relay broadcast news from AIR of course.

At present the FM market is quite lively with about four of them providing services at any time of the day and introducing people to a new way of entertainment in the course of time.

ASSESS YOUR PROGRESS

1. Prepare a brief sketch of the existing radio network in the NER.
   _____
   _____
   _____
2. Evaluate the current trend in radio programmes of FM radio stations in North-east India.

2.6 SUMMING UP

Now we can see that radio – the medium of the masses has come a long way since 1948 with a highly active life of an entertainer-cum-educator-enhancer of life skills for the North-East. Its invaluable contribution can't actually be limited in a few hundred words. Radio has been immensely successful in making itself an integral part of the life of the people of the society of NER over the decades. And this relationship is set to continue in a steady manner in the distant future also.

Beginning its humble journey as AIR Shillong-Guwahati just a few months into Independence of the country, radio has rendered yeoman's service to the region during this period and endeared itself to the people for its convenience, simplicity, an inclusive nature of functioning,

Over the decades, radio has constantly kept its journey continuously forward taking the society of the region in its stride. Even four Community Radio stations were set up by AIR in very remote areas of the region for facilitating better reception of messages as well as involving the communities with a participatory approach.

2.7 QUESTIONS

1. Write briefly about the contribution of radio towards overall development of North-East region.

2. Discuss the concept of Community Radio in brief and its evolution in this region. How does the concept differ from radio broadcasting in general ?

3. Briefly discuss the concepts of broadcasting and narrowcasting with adequate examples.

4. How does radio news service compare with that of print and TV, especially for a region like that of ours ? Discuss.

5. How are the FM channels doing under the present scenario in this region ? How do their services differ from those of AM services of AIR stations ?

6. How do you see the future growth and development of this medium in the NER ? Justify your answer.

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UNIT 3: CHARACTERISTICS OF RADIO

UNIT STRUCTURE

3. 1 INTRODUCTION

Radio programmes in its essence is most of the time are usually live broadcasts. As a tool of mass communication radio has been considered to be in close connection with its listeners. Consequently, it is important to create an environment and space within the studio that provides announcers and guest with the required comfort zone and ease. This inevitably means ensuring even-handed acoustics -- from low frequencies to high frequencies in limited space. Radio studios are used not only for talk and music playback but also live in-studio acoustic performances. For this, proper sound arrangements such as soundproofing and stable acoustics are some of the

basic requirements of a radio studio set up along with good electronic radio equipment such as microphones and recording software and tools. Electromagnetic shielding and protection from external sound waves disturbances are also to be looked into.

3.2 OBJECTIVES

A thorough study of this unit will enable you to -

- Describe various characteristics of radio
- Explain the aspects of functioning of radio both as a mass medium and as a mobile medium.

3.3 BASIC ELEMENT OF RADIO TRANSMISSION

Radio is considered to be a blind medium because it is viewless or sightless. In other words, radio is dependent on sound to convey its messages. The performer and the listener cannot see each other and have to rely on their imagination and creativity to conjure up the images. Unlike television the picture size of radio is unlimited because it is all in the mind of the listeners. The voice of the announcer or artists is supported by sound effects to convey the desired meaning to its listeners.

Radio as a technological tool of mass media functions on the basis of transmission of sound wave. Radio or Radio Data Systems (RDS) is machinery which works in combination with FM Radio (Frequency Modulation)

AM Radio

The radio stations functioning within the range between 540 kHz and 1600 kHz are known by three names:

AM (Amplitude Modulation) - AM referring to the method used to impose the program on carrier waves. 10 KHz channels are assigned for AM radio.

Medium wave – It refers to the portion of spectrum where it is found.

Short wave – For long distance broadcasting about 3000 KHz have been set aside in nine bands of the short wave portion of spectrum (3 MHz to 30 MHz).

FM Radio

Meanwhile, 200 KHz channels are assigned for FM radio. The frequency of FM carrier waves may vary and it entails a capacity to carry approximately 20000 cycles per second of the sound which are audible for human ears.

It must be noted that although traditional radio broadcast which function on medium wave and shortwave bands may have the advantage of larger service areas for a given radio station, but it also faces congestion of other radio bands.

To tackle this congestion many radio stations using higher frequency bands and FM is one example of it. But FM does have its limitations in terms of coverage area as it extends to only about 30 km radius. FM stations are idea for local stations and when a designated small geographical area needs to be covered.

Radio text or Radio Data Systems (RDS)

Radio text is the technology akin to value added service on FM radio. This technology enables FM carrier waves to transmit data along with textual materials which can be decoded and extracted via computer with appropriate

software. Listeners can choose between any one of normal FM transmission or radio text. Moreover, audio signal of speech quality can also be a part of radio text signal.

E.g. All India radio and Yashwantrao Chavan Maharasthra State Open University in Nasik has already initiated a joint venture in this regard.

Digital Audio Broadcasting (DAB)

Digital Audio Broadcasting is the digitization of radio broadcasting technology. Digital Audio Broadcasting or DAB in short rose out of a European project called Eureka – 147. It was in 1995 that BBC in London started broadcasting of this technology. Instead of the analog technology it transmits sounds in the format of computer code or digits. This technology provides interference free sound.

DAB is enabled to carry multimedia services such as text data-files, graphics, picture and moving video. Users can listen and simultaneously watch graphics, text on their computer screen. This technology can also be used for communication between tour and travel to computer terminal or equipped with a car having multimedia DAB receiver.

3.4 CHARECTERISTICS OF SOUND

Radio is a medium of sound. It is an audio medium or an electronic gadget that we listen to. Technically speaking radio transmits electrical energy from one point to another without any form of direct, wired connection.

Radio transmission essentially consists of two primary devices – one is transmitter and another is receiver. Radio waves are sends out by the transmitter and it completes the process when it reaches the receiver.

The radio set is equipped to catch the passing electromagnetic signals and when we tune it to a particular bandwidth the circuit closes giving the listeners the particular programme broadcasted in that bandwidth.

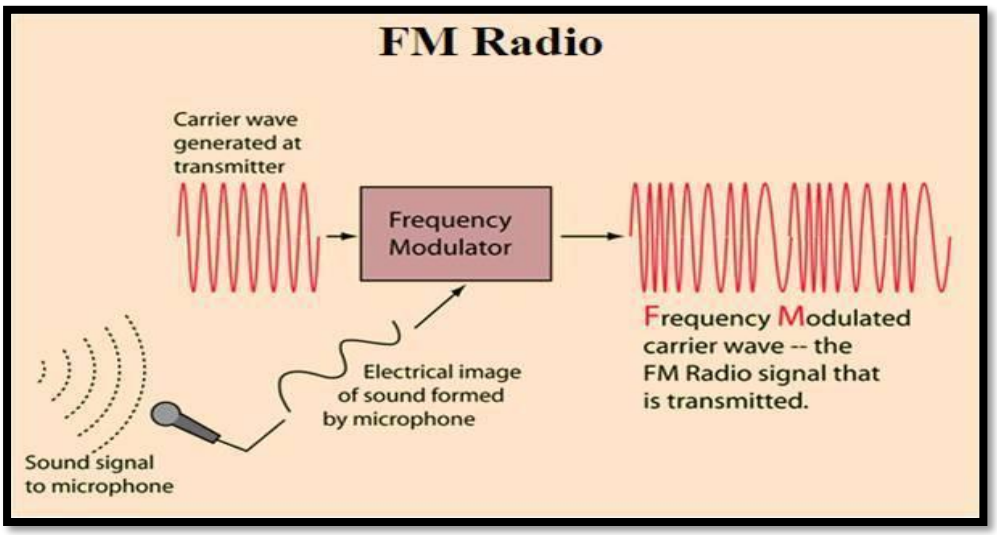
Radio waves

Radio waves are carriers of invisible energy in up-and-down movement of electricity and magnetism, similar to ocean waves. The transmitter sends programme signals which are carried by radio waves at the speed of light and are intercepted by the antenna on our radio sets.

The size of the radio wave is termed as its amplitude.

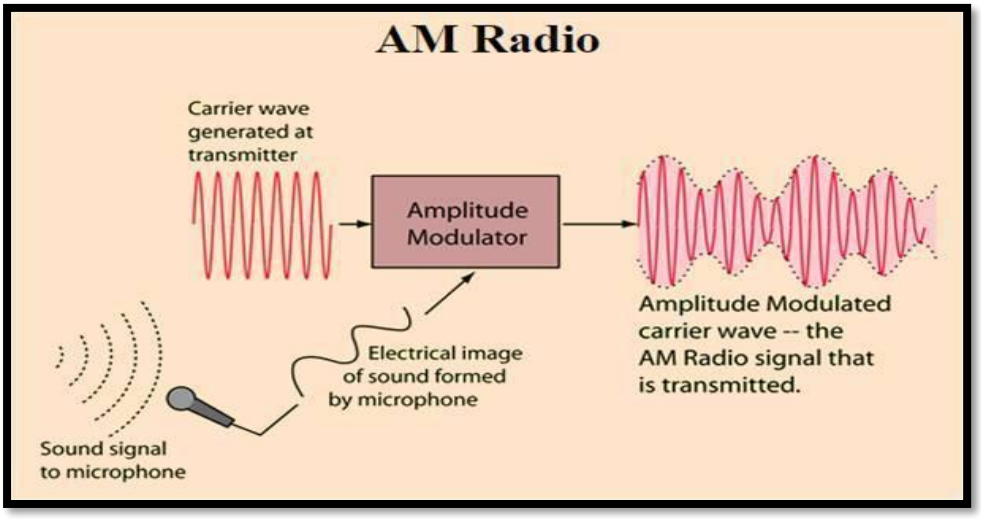
Frequency is the number of wave cycles that are completed in one second.

Frequency Modulation (FM) is when a radio program is added to the carrier in such a way that the program signal causes fluctuations in the carrier's frequency.



(https://i1.wp.com/www.indianmediastudies.com/wpcontent/uploads/2016/11/FM-Radio.jpg?w=602&ssl=1)

Meanwhile, amplitude modulation (AM) is when peaks of the carrier wave are making bigger or smaller the process.



(https://i0.wp.com/www.indianmediastudies.com/wpcontent/uploads/2016/11/AM-Radio.jpg?w=602&ssl=1)

AM & FM Modulation

The two factors, amplitude and frequency, work as the difference between AM and FM radio. In AM (amplitude modulation) transmission, the amplitude of the radio signal is used to encode information. Meanwhile, FM (frequency modulation) uses a change in frequency to encode information.

Modulation entails any variation of some property of the radio carrier in a manner that conveys information. Modulation is used by both AM and FM radio to encode information.

The AM radio are in the frequency range of 535-1605 kHz, assigned at 10 kHz intervals, while the FM radio band is from 88 to 108 MHz.

AM and FM radio differ in terms of performance and broadcast coverage area. FM stations tend to sound better than AM stations as it use a high frequency range, but AM stations can usually be heard farther away.

Technical Element of Sound

If we are to technically speak about sound characteristics then the sensation felt by our ears is called sound. It is one of the basic human senses. The sensation or energy enables us to hear. We come across various sounds around us in our everyday life.

We must know that sound travels in the form of waves. A wave carries energy from one point to another without there being a direct contact between the two points in the form of vibratory disturbance. In other words, a wave is produced by the vibrations of the particles of the medium via which it passes.

Waves are primarily categorized into two types - Longitudinal waves and Transverse waves.

Longitudinal Waves: A wave in which the particles of the medium vibrate back and forth in the 'same direction' in which the wave is moving. The medium can be solid, liquid or gaseous. Therefore, sound waves are usually longitudinal waves.

Transverse Waves: A wave in which the particles of the medium vibrate up and down 'at right angles' to the direction in which the wave is moving. These waves are produced only in a solids and liquids but not in gases. Sometimes, sound can also act as transverse wave.

Sound is wave which consists of compressions and rarefactions travelling through a medium. The following five characteristics can be used to describe sound wave: Wavelength, Amplitude, Time-Period, Frequency and Velocity or Speed.

1. Wavelength - The minimum distance in which a sound wave repeats itself is called its wavelength. That is it is the length of one complete wave. It is denoted by a Greek letter λ (lambda). In a sound wave, the combined length

of a compression and an adjacent rarefaction is called its wavelength. The distance between the centres of two consecutive compressions or two consecutive rarefactions is equal to its wavelength. The S.I unit for measuring wavelength is metre (m).

2. Amplitude – When wave passes through a medium the particles of the medium temporarily gets displaced from their earlier undisturbed position. The maximum displacement of the particles of the medium from their original undisturbed positions is called amplitude of the wave. The amplitude is used to describe the size of the wave. The S.I unit of measurement of amplitude is metre (m) though sometimes it is also measured in centimetres. It is interesting to note that the amplitude of a wave is the same as the amplitude of the vibrating body producing the wave.

3. Time-Period - The time requisite to produce one complete wave or cycle is called time-period of the wave. Now, one complete wave is produced by one full vibration of the vibrating body. Therefore, we can say that the time taken to complete one vibration is known as time-period. It is denoted by letter T. The unit of measurement of time-period is second (s).

4. Frequency - The number of complete waves or cycles produced in one second is called frequency of the wave. Since one complete wave is produced by one full vibration of the vibrating body, so we can say that the number of vibrations per second is called frequency. The frequency of a wave is fixed and does not change even when it passes through different substances. The S.I unit of frequency is hertz or Hz. The frequency of a wave is denoted by the letter f. The frequency of a wave is the same as the frequency of the vibrating body which produces the wave.

5. Velocity of Wave (Speed of Wave) - The distance travelled by a wave in one second is called velocity of the wave or speed of the wave. It is represented by the letter v. The S.I unit for measuring the velocity is metres per second (m/s or ms-1).

This applies to all the waves like transverse waves like water waves, longitudinal waves like sound waves and the electromagnetic waves like light waves and radio waves.

3.5 CHARECTERISTICS OF VOICE

Radio is the medium of sound where human voice supported by music and other sound effects is used to convey messages to its listeners. A radio speaker, announcer or artist must consider more than just content when preparing for a speech. Some of the basic elements or qualities human voice takes on when speaking are -

1. Volume – Volume is basically how soft or loud one's voice sounds. This needs to be adjusted depending on the environment one is speaking in such as the venue, the amount of people in your audience and even the content to some extent. Too high volume or too low volume will create an unpleasant listening experience for the listeners. It is advisable to keep ait a mid-range level. Loud volume may sound overbearing or brash. On the other hand, too low volume may sound too soft. The audience may find the source of the voice weak or unsure.

2. Rate – Rate is how fast or slow we speak. The rate or speed of speech creates its own effects on the listeners. Too fast speech may be difficult to comprehend by the listeners resulting in loss of meaning in the delivered messages via the radio. Too slow speech also may bore the listeners and show a lack of interest or confidence on the part of the announcer.

3. Pitch – It is the high and low frequency of one's voice but also has psychological connotations. Different pitch can be used to deliver /create different moods such as high pitch can mean happy or excited, medium pitch conveys calm, normal while, low pitch conveys sadness, upset, and

disappointment likewise. A serious issue begets low or medium pitch while high pitch can be used for something upbeat and exciting.

4. Fluency – Fluency relates to the flow of the speaker's words and in a great way can influence how the listeners follow it. Clear flow of words with limited breaks and pauses makes the speech, voice message interesting in contrast to halting speech interspersed with too much gaps and pauses. Clear flow of words signifies clarity in thoughts.

5. Articulation - Articulation is the act of expressing something in a coherent verbal form. Clear and proper pronunciation of words makes for a clear voice messages which is especially necessary in radio mass medium. Articulation comes from the Latin word for "jointed" or "divided into joints." Mumbled up words signify lack of sensitivity towards the language and the listeners and also a lack of sincere knowledge and effort on the part of the speaker. Wrong pronunciation may also lead to misunderstandings.

6. Tone – Tone refers to the specific vocal quality of human voice. It is the vocal sound with reference to its pitch, quality, and strength. Tone and modulation gives an overall feeling to what the speaker wants to convey via the spoken words. Tone is basically how a word or a sentence or a particular speech is presented in totality.

Each quality acts in harmony with the others so your audience enjoys, is attentive to and understands your speech. Let's see how this works.

3.6 RADIO AS MASS MEDIUM

Radio in technological terms is the transmission of signals by modulation of electromagnetic waves with frequencies below those of visible light. Radio uses modulation which refers to the process of varying one or more properties of high-frequency periodic waveform, called the carrier signal, with respect to a modulating signal. This is similar to musicians creating new

music via same instrument by varying its volume, timing and pitch. The three key parameters of a periodic waveform are its amplitude (volume), its phase (timing) and its frequency (pitch), all of which can be modified guests a low-frequency signal to obtain the modulated signal.

Since the 1930s, radio was considered to be an intimate and credible medium of mass communication. The public believed in it and relied on this tool for credible news and entertainment. Radio was truly a mass medium because its reach was much varied and deep and could be understood even by the lowest common denominator of the population since it was not dependent on literacy.

Referring to the earlier mentioned characteristics of the medium in the start of this chapter radio is an interactive medium and really jogs and engages the mind of its listeners. Even after the coming of television and the internet, the medium has held its own in the field of mass media and mass communication. One medium is not displaced by another – each medium reinvents itself in the context of changes in the communication environment. In the changed media scenario, radio is reorienting itself with more innovative programmes and formats.

3.7 RADIO AS MOBILE MEDIUM

Radio, as a medium has always had the mobility factor working for it. A radio receiver could be carried anywhere in a bag by the user. There are even mobile transmitters which record and sends signals on the go to be received by radio receiver sets.

Mobile radio or mobiles refer to wireless communications systems and devices which are based on radio frequencies (using commonly Ultra High Frequency or Very High Frequencies), and where the path of communications is movable on either end. Internet radio has become a staple

of smartphone users and almost all mobile phones are FM enabled which makes it a ready receiver of FM radio channels. In earlier times people used to carry small handheld radio sets to their workplaces, farmers to the field. Not much has changed except the size of the sets and the technological advances.

In many rural terrains where television stations cannot be set up, radio has emerged and worked as an efficient alternative.

ASSESS YOUR PROGRESS

1. Listen to two radio broadcasts, one transmitted on AM (AIR) bandwidth and one transmitted on FM. Note down the difference in programme content and programme quality reception (noise, clarity etc.)

_____

_____

3.8 SUMMING UP

According to a report published by IiveMint online news portal in February, 2018, radio has emerged as the second most accessed media platform in India, outpacing social networking and only behind television with listeners tuning in five days a week, in accordance to a report by market research firm Nielsen.

The report found radio to be the most effective medium of advertising among the 26-45 years age group and overall, is the most trusted medium for information. It noted that the radio industry has been growing the fastest among all traditional media. Another report titled Media for the masses: The promise unfolds' by consulting firm KPMG and lobby group Federation of Indian Chambers of Commerce and Industry predicted that the radio industry is expected to grow at a compounded annual growth rate of 16.1%

between 2016 and 2021 and is projected to be a Rs 4,780 crore industry by 2021.

Radio being a tool of electronic broadcast media has its share of technical know-how before handling it. Characterised by sound/audio voice is an important and necessary tool of this medium. Properties of sound along with voice quality and expertise are some of the things to be learned in order to dabble and work in this field of mass communication.

3.8 QUESTIONS

1. What are the characteristics of radio?
2. Explain Amplitude Modulation (AM) and Frequency Modulation (FM) of radio transmission.
3. What is sound? Mention the key characteristics of sound.
4. What are the key elements of voice?
5. Give your idea about radio as being both a mass medium and a mobile medium.

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UNIT 4 : TECHNOLOGY OF RADIO BROADCASTING

UNIT STRUCTURE

4.1 : INTRODUCTION

This unit deals with the devices and software that are an important part of any radio station. With the advent of digital technology, there has been a shift also in the technique of radio recording, broadcasting, and editing. Computer workstations have made the job of radio artistes easier and more efficient. Radio broadcasting can be passed over great distances. With digital technology, the recording media can hold more information. As the tools and technology of audio production have improved, acquiring and applying basic sound recording skills has also become easier. Microphones have become more specialised. Audio consoles come with more faders and controls for more flexibility and specialisation. In spite of all such improvements, technical problems must be anticipated and solved quickly.

4.2 : OBJECTIVES

From this unit , you will learn-

- To describe microphones, its types and characteristics
- To explain how a radio studio works
- To explain sound editing software and newsroom software used in radio stations.

4.3 : MICROPHONE

Microphone, also called a mic or mike, is a *transducer*, i.e., a device that converts acoustical energy (sound waves) to electrical energy. They are used in phones, public address systems, radio and television, in public events, etc. The most important part of a microphone is the *diaphragm,* which is usually a circular disc made of an alloy of aluminium or a thin piece of material that vibrates on being struck by sound waves.

Some microphones use an external power supply to operate. This external power is called *phantom power.* Condenser microphones use phantom power to function. Phantom power is typically 48 volts; some require voltages as low as 12 volts.

4.3.1 Characteristics and Types of Microphone

The characteristics of a microphone are:

1. **Sensitivity-** Sensitivity measures the strength of the signal produced.
2. **Robustness-** Some microphones can handle rough treatment, especially moving-coil microphones. Condensers and ribbon microphones need to be handled with care.
3. **Electronic noise-** Mics produce little noise and even a tiny effect becomes more noticeable.

There are different types of mics based on the technology they use. These can be divided into:

1. **Conversion technology:** Microphones are classified as either *dynamic, ribbon, condenser,* etc., on the basis of the technology used in mics to convert sound into electricity.
2. **Application-** Mics are designed to be used to be used for either specific or general purposes, based on impedance, frequency response and directional properties (uni-directional, bi-directional, etc.).

The different types of microphones based on conversion technology are as follows:

1. **Piezo-electric microphone:** It works on the principle that some crystalline materials like quartz et., generate small electric potential when physically stresses. The movement of the diaphragm inside the microphone causes the wafer of the crystal to twist, which produces

a voltage across it. Some of such mics have crystals joined together at edges with some space between them. This produces higher sensitivity.

2. **Dynamic microphone:** It is also called a moving-coil microphone and is the most widely used microphone. It is robust and is suitable for vocals. It consists of a diaphragm, 20-30 mm in diameter, which is suspended in front of a magnet. The diaphragm is attached to a cylindrical object, onto which coil is wound. When the diaphragm vibrates due to the sound waves hitting it, the coil moves to and fro in the magnet's gap. This produces an alternating current in the coil and converts the sound energy into electrical energy.

   Dynamic mics which have the back of their diaphragms sealed from the air, have an omnidirectional response. It does not require an external power supply.
3. **Ribbon Microphone:** It consists of a long thin strip of conductive metal foil, which acts like a 'spring' between the ends of magnets. The opposing magnetic poles create a magnetic field across the ribbon. When sound waves hit the ribbon, it vibrates and current is induced into it. It gives very high-quality results.
4. **Capacitor Microphone:** It is also called a condenser microphone. Its operating principle is based on the fact that if one plate of a capacitor is free to move with respect to the other, then the capacity of the microphone to hold the electrical charge will vary. A capacitor microphone consists of a flexible diaphragm, a rigid plate which is separated by an insulator. It requires phantom power for its use (external supply).

Microphones are also classified on the basis of how they pick up sound. Microphones can be uni-directional, bi-directional, omni-directional. Uni-directional microphones pick up sound from one directional only, leaving

out ‘extraneous’ sounds from all other sides. This has made the unidirectional mics popular in both studio and field productions.

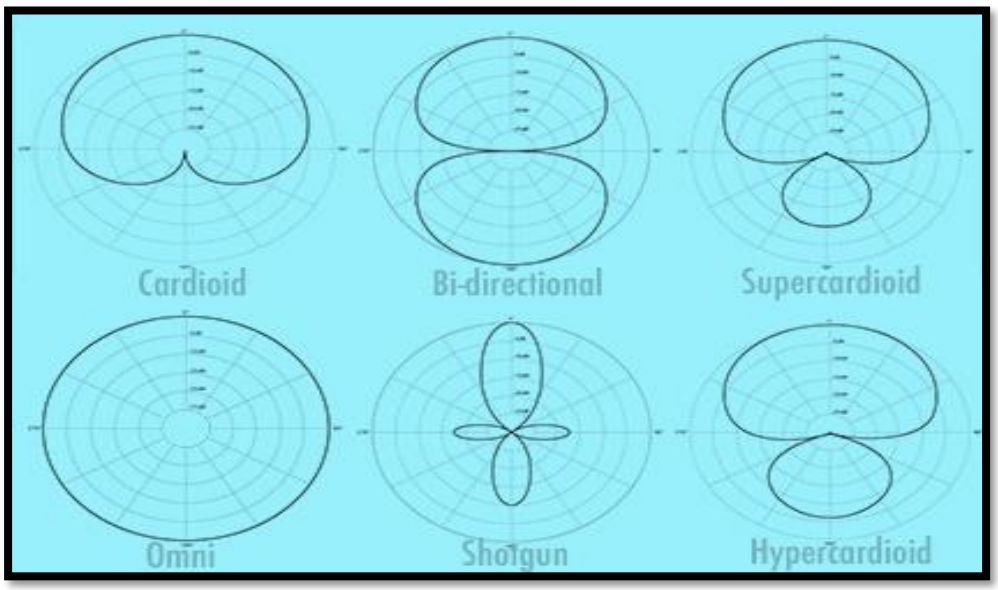
Bi-directional mics pick up sound from two directions, i.e., either front and back or from two sides. These are useful in one-to-one interview situations.

Omni-directional microphones pick up sound from every direction. It is useful during round-table conferences, etc.

There are other methods by which sound can be picked up from a moving person. Some such methods/equipment are discussed below:

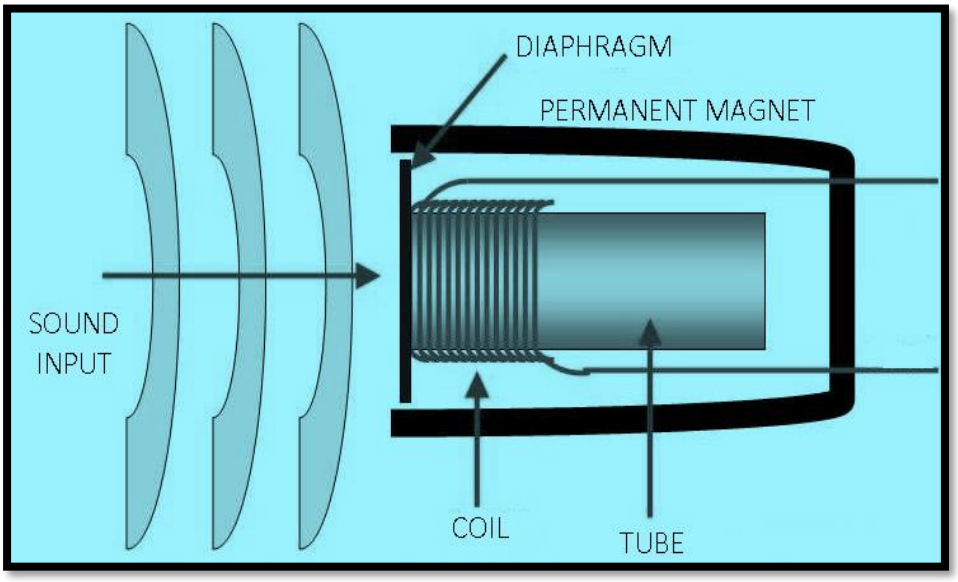
a. **Microphone boom:** it is basically a microphone stand which is suspended above in the air. These can be moved around as the artiste move while maintaining the optimum sound level.
b. **Hand-held microphone:** these mics need to be robust.
c. **Lavalier microphone:** these are small microphones that can be attached to a person. These microphones can be either crystal, moving-coil or even electrostatic. Lavalier microphones are personal mics which produce good results.

Fig 4.1: Polar pattern of microphones



Source: https://homerecordingpro.commicrophone-types

Fig 4.2 : Dynamic microphone



Source: http://sbestengineeringprojects.comdynamic-microphone-pre-amplifier-circuit

4.3.2 Microphone Accessories

The output of a recording done using a microphone can be affected by wind, vibrations, etc. It is thus, imperative to keep them safe with the help of protective gear, which are discussed below:

a. **Shock Mount-** microphones can pick up noise at the time of being handled. To reduce this, a microphone can be placed in a shock mount. This mount absorbs vibration by isolating the mic from the mic stand with rubber bands.
b. **Windscreen-** it protects the mic from excessive air movement. It is usually a piece of foam that fits the microphone.

c. **Windshield-** also called *zeppelin.* These are enclosed hollow tubes which have shock mounts inside to protect the mic from wind noise.
d. **Pop filter-** some sounds, like words starting with “b”, “p”, etc., can cause distortion in recording when pronounced. To stop this from happening, the pop filter is put in front of the mic, which controls the distortion in the sound signal caused by these sounds.

4.4 : STUDIO

A radio studio should be designed with good acoustics so that outside noises cannot interfere with the recording/production. A radio studio’s ceilings and walls should be lined with perforated panels. Standard equipment found in radio studio are: audio console, display monitors, patch panel, microphones, amplifier, digital workstation and CD machines.

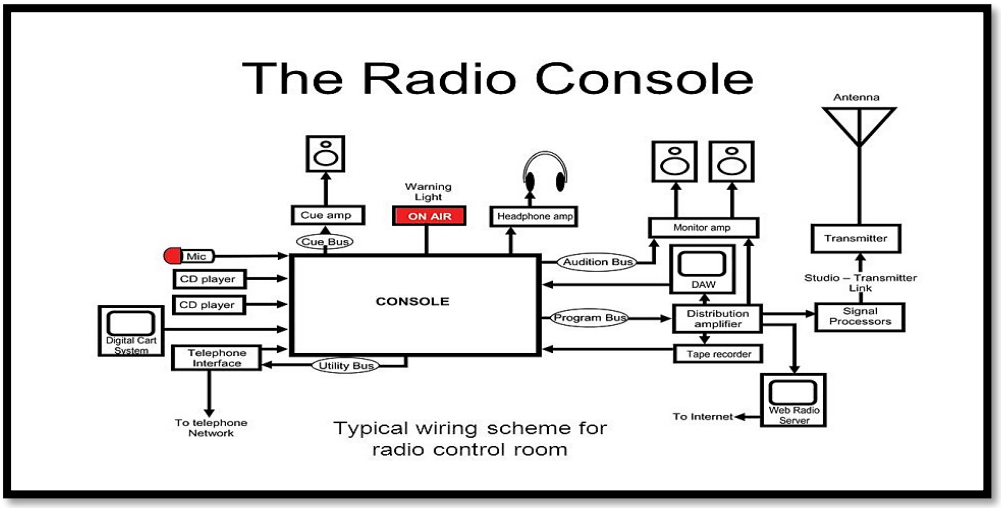
There are two types of studios in a radio station- on-air and production. The on-air studio is also called the **transmission booth**, where the announcer/artiste/anchor records his/her audio. It is attached to the production studio. During an audio production, the transmission booth is used to record audio, play fillers or pre-recorded music, etc. Many studios also have a telephone unit that allows callers to be put on the air, records interview, etc. Radio stations have pre-determined sound levels to ensure an even level of sound avoiding difficulties caused either by too low sound or too high sound.

4.5 : CONTROL ROOM

The control room is the area in a radio station which houses the audio consoles and other equipment. Whatever recording is made by the announcer/anchor in the transmission booth, first reaches the control room, where it is edited (whether on-line or recorded) by technical people who monitor this whole process, before being finally transmitted to the listeners through transmitters to their radio sets.

The control room receives on-line programmes from each transmission booth, outdoor broadcast, etc., and distributes the programme to specific transmitters (equipment through which we receive the radio broadcast on our radio sets. E.g. Medium Wave or MW and Short Wave or SW transmitters, etc.). The control room has an electronic switching system called the 'control console'. These consoles monitor the on-going programmes, with respect to audio levels, signal-to-noise ratio, reception, etc. The following image (Fig:4.3) will give you an imagination of a radio control room-

Fig 4.3 : Radio control room



Source: https://slideplayer.com/slide/4265448/

4.6 : ANTENNA

It is an equipment which receives or transmits radio waves, from the radio station to the radio sets. It catches radio waves and converts them into electrical signals. Antennae are also called receivers. The optimum size of a radio antenna is related to the frequency of the signal that the antenna is trying to receive or transmit. A transmitter is also a kind of antenna that turns electrical signals into radio waves. Most radio sets today have at least two

antennae. Two antennae are required because just a single antenna will not be able to pick up wavelengths with huge differences. The length of the antenna thus, affects the amount of wavelength(s) it catches.

4.7 : RADIO SET

A radio set is a device that receives radio signals. It also called a transistor. There are different kinds of transistors and can be classified into:

1. **Communication receivers-** these are meant for professional use and have a higher sensitivity compared to domestic sets.
2. **Pocket radio-** these are single-band portable radios which can be carried everywhere.
3. **Car radio-** it is used in cars and other automobiles. The antenna mounted on top of the vehicle

4.8 : ONLINE SOUND EDITING SOFTWARE

Almost all audio production houses today employ a computer with audio editing software. This production involves the following four processes:

1. **Recording:** this is done in the transmission booth with the help of a microphone, by using an audio file, etc.
2. **Editing:** editing audio involves cutting, pasting, etc.
3. **Mixing audio:** this involves mixing audio from the different tracks, viz., music, vocals, etc. During this time, effects like reverb, amplification, etc., is also done
4. **Mastering:** at this stage, the audio production is checked for any imperfections which are eliminated. After this is done, all the tracks are then mastered, i.e., mixed together along with sound effects, etc.

Fig 4.4 : A view of Sound Forge (sound editing software)

Source: http://eberloadsoft.blogspot.com201905magix-sound-forge-pro-1300-mega.html

Studio computers are nowadays equipped with editing software like Adobe Audition, Pro-Tools, etc. An audio editing software's interface has transport controls, tracks, mixer interface. Typically, a red button is found on the interface, which when clicked starts recording. The placement of the record button is based on the software being used. Audio that needs to be edited can be viewed in the edit/trim window, which controls the menu for sound editing, adding effects, etc.

Some software are specifically designed for restoration and mastering purposes. These are used to 'clean up' old recordings, enable equalisation and gain controls, etc. For example, CEDAR is a good example of restoration software. It has advanced visualisation tools that enable touch up of audio material in a manner like an image editing software.

4.9 : NEWSROOM SOFTWARE

With the advent of digital technology, vast amounts of storage of audio production have been made possible. Improvements made in digital audio

platforms and software have made recording, editing, storage and transmission of audio more efficient.

Computerised newsrooms make the process of gathering and processing news easier, making information available to a larger audience and instant recall of items from databases. These newsrooms are paper-free and tape-free which makes them more economical and accessible.

All through the day, local radio stations are sent national and international news, which, much like television and print news needs to be edited. Radio stations like the BBC has RNS which is serviced by correspondents all over the world. Each such story is read by a news presenter as it is stored individually as a separate file on the computer. The data is filed by category. With the help of the software, one can rewrite the copy and edit audio on the screen from a computer workstation. This 'virtual' news bulletin is prepared from the list of files stored in the computer and turned into a single playlist, which is then played. Computerised newsrooms can also take information from digital telephone lines called ISDN circuits (Integrated Services Digital Network). There are also devices in the newsroom which record and insert last-minute breaking stories. News services like the IRN uses a system called DAVE, which stands for Digital Audio-Visual Editing. It enables on-screen editing in remote locations, which can be connected to the main newsroom computer via ISDN, fax or satellite link. Computers have become an important part of radio newsrooms. They auto-download a wire copy to the word processor, allow keyword searching, and also archive sound bites. Radio newsrooms today also use websites to deliver the news.

Sourcefabric, Octopus, Superdesk are some of the most widely used newsroom software today. Another paperless newsroom software called *Myriad News* is designed for small newsrooms to generate content to be published on many platforms. These software perform the following tasks:

a. Capture and categorise news stories coming from various sources like IRN/Sky News, Twitter, etc.
b. Edit and compile the content into hourly bulletins.
c. Present the bulletin in clear, easy to read on screen text for paperless operation.
d. Cue audio relevant to each story automatically.

4.10 : FM BROADCASTING SOFTWARE

FM and AM stations are located at different points in the spectrum. FM broadcasters use 30 kilocycles for transmission to provide a larger channel width and better opportunity for fine-tuning to its listers. FM is broadcast as a higher frequency than that of AM. FM stations aren't affected by changes in the atmosphere. Since FM stations radiate direct waves, the height of the antenna is as important as power. The higher the antenna, the farther the signal travels. In today's age, computers play a big role in FM broadcasting.

4.11 : SOUND EDITING SOFTWARE

The aim of sound editing is to create a natural-sounding piece. It is used to remove unwanted parts in a recording. Earlier, radio stations used analogue editing techniques which required the following tools:

- Splicing tape
- Razor blade
- Splicing block
- Chinograph pencil

Today most editing is done on digital audio workstations (DAWs), which use computer software like Pro Tools, Adobe Audition, etc, where audio data can be viewed as a waveform.

Editing processes fall into three categories: corrective editing, creative editing and restorative editing. The aim of corrective editing is to resolve issues in an audio production, which may have occurred during recording. This includes cutting, copying, pasting, crossfade and so on. The aim of creative editing is to recreate an audio piece anew, which is different from the original. Creative editing may include recycling, beat-mapping, changes in the timing and pitch of audio, etc. One of the biggest advantages of sound editing software today is its restorative functions for the preservation of old audio (music, interviews, etc.) for the future generation. Sound editing software is thus important in any radio station. It involves the removal of unwanted noise, compile the best parts from an audio recording, make this sound in tune with the others, and so on. It allows multiple-track editing.

ASSESS YOUR PROGRESS

1. Discuss the different equipment used in a radio studio at different phases of audio production.

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4.12 : SUMMING UP

This unit introduced the equipment used in a radio studio on a day-to-day basis. Microphones are an important part of any recording studio. Due consideration should be given to the choice of mics for audio recording. Its mechanism is needed to be thoroughly understood for a good audio

production, which otherwise may affect the quality of the audio being produced. The radio studio has come a long way from the use of magnetic tape for recording to digital audio workstations. Most studios today have computerised workstations which have made the process of recording, editing and transmission more efficient. These software have a user-friendly interface and display the audio data in the waveform. They also allow for multi-track recording and editing. Digital technology has made the experience of sound recording easier, cost-effective and has brought it to the reach to common people who can utilise their creativity in the process of audio production.

4.12 : QUESTIONS

1. What are the different types of microphones?
2. How does a microphone's pickup pattern affect an audio recording?
3. What changes were brought in by computers in radio technology?

4.12 : RECOMMENDED READINGS

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MODULE II: RADIO BROADCASTING FORMAT

UNIT 5: FORMATS OF RADIO BROADCASTING

UNIT STRUCTURE

5.1 INTRODUCTION

This unit is designed to give a broad understanding on various formats of radio production. We will discuss what is radio talk show, interview, discussion, drama etc. and how are they conducted and later broadcasted. This unit will give a brief overview of spoken-words that are not simply

written words, but requires a well-trained, confident and well-practiced voice to handle any emotion with spontaneity. Although there exists the concept of script, but importance is given mostly on the spoken words because in radio, audience listens, they do not see.

5.2 OBJECTIVES

A thorough study of this unit shall enable you to

- Explain the usage of spoken words in radio production
- Identify different format of radio production in terms of style and treatment
- Design programmes on different format based on need of production
- Produce and present spoken-word programme

5.3 FORMAT OF RADIO BROADCASTING

We often come across various radio programs in our regular lives. Starting from the announcements made for any upcoming programs such as news, dramas etc. to the music, we listen to various formats that are being used by radio broadcasters. Announcements are usually made by people whom we term as announcers, however, with time, in commercial and private radio channels, they are called as Radio Jockeys (RJs).

Radio format can be categorized on three parts:

(a) Spoken Words

(b) Music

(c) Sound Effects

In this unit we will discuss comprehensively the first category i.e. the spoken words. Spoken words are written and are generally scripted. Dramas, NEWS, Documentaries and all other formats follow all the three categories of radio format; spoken, music and sound effects. The spoken word format is content-

specific and audience-centric. It is the responsibility of the scriptwriter to understand the audience and generate content accordingly. It is the sole responsibility of the scriptwriter of the radio programmer to deliver fresh spontaneous and emotional behind every word to be on air.

There are certain elements that need to be taken care of while presenting spoken words programme. The voice of the speaker in a radio programme must be confident with a strong command over the language. The flow of delivery of talk should be easy for the listeners. Moreover, complicated words or more flowery words should usually be avoided so that they are not overburdened. It is also advisable for the speaker to concentrate on pause and emphasize on punctuations. Another most challenging task for the radio speaker is to balance the emotion as he/she cannot see the listeners and cannot get direct feedback for improvisation. The speaker at the same time needs to look after the pace of his/her speaking too, which is usually one twenty words per minute.

Summing up, it requires excellent and precise broadcasting skills of the speaker that could be cultivated by proper training and practice.

Let us now elaborate on each of the formats of radio programming.

5.3.1 The Talk

It is the one of the most common and the oldest format of spoken-word generally broadcasted by radio producers. Through this format, the radio producer can invoke consciousness among the mass regarding any real-world issue. Talks or talk shows can be effectively used for discussing interesting subject matters that are new and making the audience stick to the radio. The speaker with its presentation style and manner makes more appealing for the audience to listen. Talk shows on the other hand are mixed with information with light entertainment which is emerging as a very popular format. Talk shows to be successful depends on various factors such

as the nature of the host, the guest and the theme. With the uniqueness of the voice of the host, and guests or celebrities that are invited contribute most to the image and popularity of the show. It is important for the host to be pleasant and friendly to the guest, cracking jokes and at the same time sensible towards the theme addressed in the show as well as to the guests. Through talk shows it is formed to gain awareness and generate interest among the listeners.

Talks can be both spoken and written words, as many radio producers insist on talks to be written and well-scripted so that the content theme are well covered and the talks do not get off-the-track. Proper scripting prior to the talk show can also conform to the editing clause for the radio producers, at the same time can adhere to the time limit standards of the radio station programme schedule.

5.3.2 Radio Interviews

Journalists and radio programmers use different techniques of interviewing, where interviewees are being invited for some specific issues or themes of concern for the radio producer. Interviews can be different based on their duration, content and purpose. The duration of any interviews varies from 10 to 60 minutes based on the topic as well as the person invited for the interview. Before inviting any personality for the interview, the radio producer decides upon the theme or topic of the interview and its relevance in the present context. The slot dedicated to the interview also plays a crucial role in segmenting the audience. Another most crucial type of interview is the voice of people through which one or two questions are put across to ordinary people or people with knowledge of a particular topic.

Interviews are classified into three types: opinion, information and personality interviews.

Opinion interviews are conducted to get a variation of opinions on a particular subject matter. The host put questions that give the scope for opinion based answers on certain themes or events. It is for the host to effectively probe questions to carry the conversation thematically. Interviews are sometimes conducted over the phone as part of the radio programme. Information interviews are taken into consideration from an authoritative personality or agency that are concerned with particular event or incidence. The host asks questions of a general layperson to the authoritative personality to get information for the audience. In personality, interview celebrities are called for various purposes such as politics, entertainment etc. People with less experience may be qualified for interviews if they have witnessed any event or incidence or have contributed to it.

On the other hand, several interview programmes have other form of presentation such as 'know your leader' where interviewers try to explain the varied lifestyles of a personality and probe questions based on the theme of the programme.

In many other types of radio interviews, it is also important for the interviewers to keep certain things in mind. Interviewers must use language that is simple and easy for the audience to understand as many a times the audiences are rural agricultural people that might not be well acquainted with the language used. Many a times, scientists or doctors are invited for interviews, or for that matter, any experts that are technical in nature, the host at that time has to keep in mind to simplify the answers from the interviewee. The interviewer often has to ask the experts to simplify or explain more on certain critical information. In order to interview, the radio interviewer is expected to be intuitive with good general awareness and communication skills.

5.3.3 Radio Discussions

Discussion is broadly categorized into four types: Panel, Symposium, Debate and Mixed. The format of the panel discussion is generally followed in the case of radio broadcasting. Discussion is usually to find a solution to a problem, for example social or economic, which might be controversial in nature. In radio discussion, two to three people sit together over a set issue for the day and then pooled to come to some conclusion. People with varying knowledge share their views and opinions on the matter of public concern in a radio discussion which reflects varied perspectives of one problem, and looks forward to solving that. Usually, these discussion runs for 15-30 minutes where two to three join the discussion that is moderated by a journalist or well-informed personality. Moderator introduces the topic, probe questions, ensures the thematic direction of the discussion. It is also the responsibility of the moderate to conform to the time limit and allocate time equitably to each speaker.

5.3.4 Radio Drama

Like any other drama or play in a theatre or a stage, radio drama follows a similar format. However, in the case of radio drama, the imagination of the listeners is an essential element. Through spoken words, background score and music, the listeners can be set to belief a story just by listening to it. In a radio play, spoken words play a major role followed by music, sound effect and silence. Silence in a radio drama can be equally dramatic as a spoken word or sound effect. The play writer needs to focus on giving information which otherwise will not be possible as radio drama is heard and not seen. As radio drama is heard, dialogue plays an essential role in defining the scene and characters. Different listeners interpret sounds in their way but dialogues help them identify and relate the characters. Therefore, it is the responsibility of the play writer to establish the scenes and characters, enhance the listeners' imagination of any situation with the writing.

5.3.5 Documentaries / Features

A program documented on certain real incidents/events or persons are generally termed as documentaries. The purpose of documentaries can be of two types of educational and public service which is similar to any other electronic broadcasting media. Radio documentaries have spoken words, background score and music to give a realistic depiction of incidents or events. The vital elements of a radio documentary that makes it different from radio drama is that the sound or voice of people are real and based on facts. The success of radio documentary is based on facts presented in a dramatic or appealing way. The documentary should be organized logically and efforts should be made to present in a sequence. The documentary in many cases are seen as a tool for problem solving or problem identification. However, the producers or programmers are not necessarily following it but at least should articulate the problem for the common masses.

The relevance of documentary is immense with respect to social dynamics. Documentaries influence people's behaviour, beliefs, action and thoughts by giving a reality or fact check of any events or incidents. It is seen as a tool to persuade the listeners to act or advocate for a solution to a problem, or articulate a problem. The documentary is not news, it is beyond the purview of news that reports facts or events, it focuses on the representation of facts in an appealing and persuading way. The radio documentaries, many a times are referred to as radio features. For a documentary or feature to be successful, the beginning and the ending must be effective and should be able to grasp the attention instantly.

5.3.6 Commentaries

Radio commentaries are categorized into two broad types: News commentaries and Live running commentaries on sports or cultural events. News commentaries present the theme in perspective, take stock of divergent shades of opinions expressed about the happening and synthesize them

adding an editorial comment. What defines news commentaries are the attributes such as it is a narration of factual aspects of a story, laying focus on the personality involved, giving a mount to the story by putting it into a historical perspective, taking stock of diverse opinions expressed and prognosis made about the future course of events. News commentaries are generally on topical subjects and need a well-acquainted person to write a commentary instantly.

Commentaries on events are slightly different from news commentaries. Event commentaries are usually unscripted that provides a real experience of the event and get sink into the details of the events with imaginary participation. To give a real experience of the event, it is necessary to bring sound effects from the events and inserting narration by the commentators. It is important to get spot interviews with the actual participants. On the other hand, sports commentaries engage peoples with the most dramatic feel of the real event. Radio commentators require skills, attentive minds, and good articulation. The radio commentators should simplify description so that it is understandable to everyone, use of spoken words in present contexts, keeping tone soft and appealing and at the same time describe the environment, weather, ambiance, mood and reaction of the spectators.

5.3.7 News

As radio is an audio medium for mass communication, the focus in radio news is to draw an imaginary picture of an event through using effective spoken words as well as it is important to use the ambiance sound. The process of news creation includes sourcing of story, investigating and examining the credibility of the facts, conducting of news interviews, writing scripts, introducing the story and presenting and broadcasting the bulletin on-air.

The quality of news in radio broadcasting depends mostly on the news reporter to recognize the news and report it correctly in a radio format to be

effective. It is also the responsibility of the reporters to identify newsworthiness and make it interesting for the listeners. There are certain predetermined steps to be followed while getting any story on-air. The stages are Pre-production, interviewing sourcing the story, scriptwriting, production process and news broadcast. The variation of news bulletin varies from 5 minutes to 30 minutes, the longer news bulletin has interviews, features, reviews and comments from experts. Though the writing style of news may vary from medium to medium, yet the basic principle of writing news for radio is similar to writing news for print media or television. For instance, 5 Ws, and 1 H is the foundation of any news. The 5 Ws and 1 H are-

i) Who was involved with the event?
ii) What was the event?
iii) When did it take place?
iv) Where did it take place?
v) Why did it happen?
vi) How did it happen?.

5.3.8 Phone-in

In radio broadcasting, technological advancement is evidently visible with phone-in as the most important format. Through this radio broadcasting format listeners and presenters interact with each other which is becoming popular over time. The talks many a times are live that instantly go on air, and sometimes later. The radio phone-in is also used to air grievances, queries or requests. The phone-in program is designed to have a stipulated timing and dedicated experts to discuss problems and consult. However, the format was introduced for playing the listeners' request based on film songs but now the trend changed to more interactive form. Phone-in programmes are generally used for government service messages in health-related programs, rural agricultural practices for the betterment of social being.

ASSESS YOUR PROGRESS

1) Briefly elaborate on the spoken-words and its important elements to be taken into account while designing a radio programme.

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_____
_____

5.4 SUMMING UP

Through this unit, we have tried to comprehensively explain the crux of spoken-words programmes and the several radio formats that radio programmers usually use. We have also drawn a brief overview of types of radio programmes: spoken-words, music and sound effect, and distinguished between written words and spoken-words.

The spoken words are direct communication with the listeners that attracts and hold the attention of the listeners and retain the interest in radio. We have learned different formats and features of radio programmes such as radio talk, radio interviews, commentaries, news production etc. to name a few. We have also learned about the new information technology format such as phone-in that is more interactive in nature.

5.5 QUESTIONS

1) Elucidate different formats of radio programmes in the context of any events, such as sports or cultural?
2) Describe how radio talk shows and radio interviews differ from each other. Explain with relevant examples
3) What are the key factors to be kept into account while conducting radio interviews and radio talk shows?

4) Discuss the role of participant's interview in a radio news and radio documentary. Highlight the difference and importance in news and documentary.
5) Discuss briefly the sector where the radio interview and radio discussions can be used effectively.What are the important elements for producing a radio news bulletin?

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UNIT 6: FORMATS OF RADIO BROADCASTING (MUSIC)

UNIT STRUCTURE

6.1 INTRODUCTION

This unit primarily deals with the 'music' format of radio programmes and its various aspects. A different genre of music in radio programmes include classical music, folk music semi-classical music and film music. Variety is a significant element of radio programming in order to engage the mind and imagination of the listeners. Radio programming and broadcasts today have taken on more lively and interactive character than their earlier counterparts of traditional radio programmes.

6.2 OBJECTIVES

A thorough reading of this unit will enable you to–

- Describe different formats and genres of radio programmes.
- Write about the music format of radio programmes
- Differentiate between the various music programme formats and their characteristics

6.3 RADIO FORMATS / RADIO GENRE

The overall content of a radio station is referred to as the radio format. It is also sometimes called as programming format. Most radio stations have their own unique or signature style of programming and format, but some also run multiple genres. Radio formats or genres are formulated and structured to cater to particular target audience comprising of varied demographics and niches, such as a particular age bracket, gender, ethnicity or just media taste and preference.

If were to remember radio programmes that we have come across, we would probably remember film songs, phone-in programmes, talks, discussions, news, commentaries (sports, important events) etc. These different types of programmes are simply called formats.

Radio programmes can be classified into two broad groups:

1. Spoken Word programmes – This format of radio programmes is already discussed in the previous unit.(Unit 5). In that unit you have learnt different spoken-word radio formats such as news bulletins, talks, discussions, interviews, educational programmes for schools and colleges, specific audience programmes directed towards women, children, rural and urban listeners, drama, features and documentaries.

2. Music programmes – These include disc jockey programmes, countdown shows, musical performances of varied types and variety programmes called magazine programmes.

Few programmes like drama, features and documentaries require both spoken word and music.

Another important aspect element of radio formats is Sound Effects. Following are the ways how sound can be used in radio formats.

- Sound can be used to invoke interest.
- Sound can be used for comic effects to evoke laughter
- Sound can be used as a mood creator or enhancer.

Let us take a quick look at the various commonly used radio formats:

- **Chart Shows** – One of the classic program type chart shows are basically countdown shows lining up the top-rated songs for the week/month. Chart shows may have their own audience poll to line up the chart or follow official ratings provided by Billboard charts, iTunes chart and others based on streaming and record sales.
- **Entertainment Programs** – Entertainment segments or entertainment cuts in radio programming bring in some light fun to the radio programming. Shows such as stand-up comedy, radio pranks, funny reviews, phone-in quizzes, and fun contests for the listeners. These light segments can act as smooth transitions between talk shows and music shows.
- **Late Night** - In online radio, late-night programming is incredibly flexible. Late evenings usually have fewer listeners tuning in, which could be a great time to debut new DJs who are still finding their groove. Late-night programs are often music-centric, though It often depends on a station's late-night listener stats.
- **Live Shows** – Live programs are those which are broadcast in real-time. Live shows present plenty of opportunities such as talk shows, phone-ins, live-event, live chat with interview format and so on. Broadcasting live brings in a more energy and enthusiasm to the broadcast and more engagement with the listeners.
- **Morning Wake-Up Shows** - The Morning Show is another significant feature in the world of radio broadcasting. These programs set the tone for the entire day for its listeners. They are like the morning wakeup call of the media in the lines of the morning

newspaper reading. For area-specific stations, morning programs are a great opportunity to keep up with recent events, traffic, major news stories of the day, and weather, to prepare your listeners for the day.

- **Music Shows / Genre Specific Programming** – Music shows, as suggested by the category are those shows and programs centred on music. The average radio station may play nothing but a couple of hours of pure music. Music shows can be specific to a genre, a decade, or even a theme such as party, workout, instrumentals etc.
- **News and Weather** – Reportage of news and weather is a great way of sharing useful information with the listeners. Many radio listeners look forward to the weather forecast segments to plan out their day accordingly. News and weather conditions from around the world or in our immediate locality are covered by these news and weather segments.
- **Radio Dramas** – Radio dramas are one of the staple programmes of any radio stations. Nowadays, they mostly appear as podcasts. Radio being an audio medium, dramas broadcasted on radio relies on dialogue and sound effects to tell a story. The drama can be comedies, musicals, and more. Depending on the target audience and demography radio dramas are a great source of entertainment or can also be used to as public service message carriers once in a while.
- **Request Shows / Call-In Shows** – Request shows consist of listeners calling in for requests or shout-outs. They are an excellent opportunity for the station to engage their listeners and create intimacy/bond with them. Listeners are part of these shows as much as the announcer/radio jockey.
- **Specialty Shows** – Speciality shows are special or short programs inserted within the regular schedule like travel, technology, history, or celebrity news. These are a fun ways to break the monotony of

regular broadcasts or to cover interesting topics that cannot be categorised with other usual news and music shows.

- **Sport Programmes** – Sports programme cover the latest happenings in the field of sports. These may include sports news, athletes, game coverage, and more. Sports programs also include live coverage of sporting events like the world cup, Olympics, Asian games etc.
- **Talk Shows / Talk Radio** – Radio talk shows are basically panel discussions on radio where radio hosts discuss topics relating to current events with people related to the field on which the discussion is based or experts related to the domain. Most of the time these shows also include listeners' input and views.

6.4 CLASSICAL MUSIC

The radio stations in India have had a very significant role in propagation and keeping alive the rich traditional and cultural heritage of the country. This is especially true in the context of music and arts. Indian classical music is considered to be one of the most structured in terms of its genesis and growth.

Classical music in India can be categorized into three major divisions. They are:

- Hindustani classical - Hindustani classical music is the traditional music of northern regions of India. The term North Indian Classical music is also used to denote this category of music.
- Carnatic classical - Carnatic music tradition is a system of music usually associated with southern India, including the states of Andhra Pradesh, Telangana, Karnataka, Kerala, and Tamil Nadu, as well as Sri Lanka.

- Western classical – Western Classical music is basically art music developed or rooted in the traditions of Western culture. In technical musical usage this means music composed during the late 18th and early 19th centuries in the works of Mozart et al. In popular use, however, the term is used to mean any serious art music as distinct from jazz, pop, or folk.

Vocal and instrumental music forms are also provided platforms in the radio. In 2016, All India Radio launched a non-conventional audio broadcast channel via the Internet and 'free dish' with easy accessibility to it for connoisseurs of art, especially classical music- both Carnatic and Hindustani. The Channel, known as 'RAAGAM', is in public domain round the clock with Mobile App i.e. All India Radio Live available in Android I OS and Windows.

6.5 SEMI CLASSICAL MUSIC

The Indian music which is deemed as 'semi-classical' or 'light classical music' takes the basics of classical music but in a simplified style making it more accessible. Semi classical takes inspirations from classical notes/ragas but has the artistic freedom to play with the notes. Examples can be said of Thumri, Dadra, Kajri, Chaiti etc are semi-classical (and folk, of course) whereas Ghazal and Qawwali can be termed as light music. Indian radio stations have special Ghazal or Qawwali slots and so on. Instrumental music forms include string such as sitar, sard recital, wind such as flute, shehnai recitals, percussion such as tabla, mridangam recitals.

6.6 FOLK MUSIC

All India Radio via its code of broadcast ensures to promote national integrity and harmony. This media tool has its presence all across the country with both regional and local stations and sub-stations. Inevitably, the stations

help in giving exposure and providing a platform to the various folk cultures especially music forms that are practised in the country. During various festivals and otherwise too the folk music of the particular celebrating community and region are broadcasted via radio. Many traditional devotional and folk music is a continuous features in many radio stations. Examples such as, Bihu songs in Assam, Bhangra in Punjab, Baul geet in Bengal are common in many stations.

6.7 FILM MUSIC

If we to ask the general population what is the most popular and common type of music an average radio listener listens to the answer would most probably be 'film music' or specifically 'Bollywood film music'. You would most probably say 'film music.' While there are many thriving film industries in the country and film songs in many different languages, the one with a national appeal and popularity is Hindi film songs. Most radio stations; be it public or commercial has a Hindi film song segment is definitely on their broadcast menu. Bollywood song request programme for the armed forces personnel is one of the popular programme of AIR. Countdown programmes are also popular along with phone-in song request programmes. Many private commercial FM channels are hugely dependent on film music for their content. Film music caters to the young generation with the latest songs while the older generations also take part in it via the old Bollywood numbers played by the stations during specific segments.

There are also listeners who like light western and pop music and there is a large section of young people listening to western pop music.

ASSESS YOUR PROGRESS

1. List one radio music programme under each category of classical, semi-classical, folk music and film music. Write down their programme content, presentation styles, positive points,
   drawbacks._____
   _____

6.8 SUMMING UP

The medium of radio to a large extent is known or linked to music. Music is considered to be the one of the most important programme format and content of radio. This unit provided a detailed look into the basic music formats one can hear on radio. The field of music is so vast and varied that each music genre has its own dedicated music segment or even entire stations dedicated to one particular type of music. Even when advertisers look to place commercials on the radio, they need to know whether a station is playing country music or hip-hop. That helps them decide how to pinpoint their message to reach a specific audience.

Radio stations constantly look for ways and avenues to structure their formats to the changing taste of the audience. Music itself being an ever-evolving art form, the radio programming for it also needs to evolve and change with it. The radio may change the formats, broadcast styles but music is definitely here to stay as part of radio broadcast format.

6.9 QUESTIONS

1. What are the various radio formats?
2. Mention the common international music genres.

3. Give an overview of the musical formats of Classical, Semi-classical. Mention distinguishing features of both forms.
4. Explain folk and film music formats with examples?
5. Give your opinion about the importance of music in radio programming format.

6.10 RECOMMENDED READINGS

Price, S. (1998). *Communication Studies*, Longman.

Hans, A., E. (*2001). Kinesics, Haptics and Proxemics: Aspects of Non-Verbal Communication, IOSR Journal of Humanities and Social Science.*

UNIT 7: ORGANIZATIONAL STRUCTURE

UNIT STRUCTURE

7.1 INTRODUCTION

In this unit, we will discuss the broadcasting scenario in India, specifically the structure and functionality of the organizational body of radio broadcasting. This part of the module will engage with the hierarchy of the radio broadcasting right from the ministry to the local radio station, the

policy design and implementation of the radio broadcasting unit. We will also look into how the organization personality works for smooth functioning of producing content from news to entertainment. The unit will also try to provide the wide range of activities involved in producing content for wide variety of audience from planning programme to transmitting it.

7.2 OBJECTIVES

A thorough study of this unit shall enable you to -

- Explain the organizational structure of radio broadcasting
- Describe the role and responsibilities of varied organizations associated with the radio broadcasting

7.3 ORGANIZATIONAL STRUCTURE IN RADIO BROADCASTING

The organisational structure of any institutions are formulated keeping in mind the objectives and functions. The organisational structure of radio stations and broadcasting agency similarly has hierarchy of radio professionals and bureaucratic personnels. In India, presently, there are public service broadcasting organisation as well as commercial or private broadcasting. The organisational might differ from each other based on the ownership of the radio broadcasting agency. The radio broadcasting organsiational structure is different based on the size of the network, the objectives and the policy of the owner agency.

7.3.1 Broadly organization structure can of three types:

a) Line Organization
b) Line and Staff Organization
c) Functional Organization

In *Line Organization*, the authority is direct without any advisory or auxiliary attached to it. It is a simple, linear and mostly suitable for smaller organizations.

In *Line and Staff Organization*, the staff positions are available for all the advisory and auxiliary services such as from sales to accounting to public relation.

Functional Organization have provisions for branches or departments which has specialist accountable to senior counterparts in central office or headquarters. Both public and private broadcasting agency adopts the functional type of organization.

CHECK YOUR PROGRESS – A

1) What type of organization structure does a Public Radio Broadcasting have?

7.3.2 Ministry of Information and Broadcasting

The Ministry of Information and Broadcasting functions broadly to represent the face of government reaching out to the masses. This body of government is entrusted with the task to disseminate information about government policies, schemes and programmes through the different means of communication tools such as radio, television, press, social media and public relations activities which also includes traditional forms of communication. The ministry is also the central body regarding the policy matters to the private broadcasting sector, monitoring and administering of the public service broadcasting such as Prasar Bharati, advertising and publicity of government policies and programmes, film promotion and certification, and regulation of print media. The Ministry of Information and Broadcasting is organized into three wings: Information Wing, Broadcasting Wing, and Films Wing.

Radio production is associated with Broadcasting Wing of the Ministry. The Broadcasting Wing administers the Prasar Bharati (Broadcasting Corporation of India) Act 1990 takes care of the affairs of All India Radio and Doordarshan including matters related to the development of radio and television broadcasting throughout the Union, installation and maintenance of Radio Stations and transmission.

CHECK YOUR PROGRESS – B

1) What role does the Ministry of Information and Broadcasting plays in operating and regulating Public and Private radio Broadcasting?

7.3.3 Prasar Bharati

Prasar Bharati is a statutory autonomous body established under Prasar Bharati Act, 1990. Prasar Bharti is the largest statutory autonomous public service broadcasting agency which was set up in 1997 by an Act of Parliament and comprises Doordarshan Television Network and All India Radio. The primary function of Prasar Bharti is to organize and conduct public broadcasting services to inform, educate and entertain the public and to ensure a balanced development of broadcasting on radio and television.

The Prasar Bharati Board comprises of superintendence, direction and management for the affairs in the Prasar Bharti. The Board is headed by the Chairman and comprises of Executive Member (Chief Executive Officer), the Member (Finance), the member (Finance), Member (Personnel), six Part-time members, a representative of the Ministry of Information and Broadcasting and the Directors General of All India Radio and Doordarshan as ex-officio members. The Board delegates powers and responsibilities to the Chief Executive Officer who discharges the function of the organization accordingly.

CHECK YOUR PROGRESS – C

1) What is the role of Prasar Bharati in the Radio Broadcasting process?

7.3.4 Directorate of All India Radio

The Prasar Bharati Board functions at the apex level for ensuring the formulation and implementation of the policies of the organization and fulfillment of the mandate in terms of the Prasar Bharati Act, 1990. The Executive Member functions as the Chief Executive Officer (CEO) of the Corporation. Officers from different streams working with Prasar Bharati secretariat assist with the CEO, Member (Finance) and Member (Personnel) in implementing actions, operations, plans and policy as well as look after the accounts and budget of the Organization.

The All India Radio is headed by Director General at the office of Directorate of AIR. AIR is responsible for managing and administering the entire Akashvani Network.

The All India Radio (AIR) is constituted of five major Wings:

a) Programmeme Wing
b) Engineering Wing
c) Administrative Wing
d) Security Wing
e) Audience Research Wing

CHECK YOUR PROGRESS – D

1) How do the five major wings of AIR supports the Radio Broadcasting functions?

7.3.5 Regional Radio Stations

The All India Radio (AIR) initiated regional radio services in India. AIR caters to different regions and languages in India through their regional service wings. Every state in India has regional radio stations commonly named as *Akashvani Kendra. Vividh Bharati Seva* is one the flagship service of AIR which depicts the 'Multi-India Service' . Vividh Bharati is the most commercial of all regional services in Indian radio and is popular in Mumbai and all other Indian cities.

Regional Radio has extensively engaged with the local dialect and tastes of the local population which enables it to produce content that is preferred by the listeners, setting it ahead of the competition. Regional radio has the power of reaching out to the masses in a cost-effective way. The stations are now gearing up to present programmes of national level, keeping the integrity of the nation in mind.

CHECK YOUR PROGRESS – E

1) What role does the Regional Station plays to integrate the locale interest of any community?

7.3.6 All India Radio (AIR), AM/FM/SW

The Indian radio stations are of two types: Public and Private. The AIR broadcasting comprises of three-tier system: National, Regional and local stations. The radio stations can be both public and private and at the same time can cater the listeners at the national, regional and local level.

National Channel of All India Radio broadcast from Delhi which consists of the national programme of talks and features in Hindi and English, music and drama. The Delhi Broadcasting is heard on Medium Wave and also Short Wave. The broadcasting is done is three languages namely Hindi, Urdu and English in order to reach every individual or varied cultural background. However, this has been closed in January 2019.

On the other hand, Regional stations caters the locale regional languages and dialects. It is located in a major linguistic and cultural region of every state. There are in total 116 regional channels across 29 states and 6 Union Territories including Northeastern Service at Shillong that projects the cultural diversity of the North Eastern region of India. The regional channels are broadcasted on the Medium Wave, focus on the classical and folk music, agricultural programmes that are relevant to the region concern, and programmes on education and health.

The local radio is relatively new in India, that serves small communities, broadcast local culture and contents are mostly area-specific that benefits the local communities. The broadcasting is mostly in FM mode, where the programmes are mostly flexible and spontaneous.

CHECK YOUR PROGRESS – F

1) Distinguish the functioning between National and Regional AIR channels.

7.4 NEWSROOM ORGANIZATION

We shall discuss briefly about the hierarchical structure of news room, along with the functioning of various wings attached to it.

7.4.1 News Room Structure:

News Services Division of All India Radio (AIR) works round the clock and it is the largest radio news organizations in the world. It broadcasts close to 284 bulletins daily out of which 146 are from Delhi and 138 from Regional News Units. The news service is headed by the Director General News assisted by four other Additional Director and seven joint Director, which looks after the monitoring services. The AIR also monitors and broadcasts foreign radio stations and make them available for Indian listeners.

7.4.2 News Room Functioning:

The All India Radio, on and average, receives three to four lakhs news items during a 24-hour timeline. News editors working in the General News Room take up the responsibility to examine the copy and shortlist the items for usage. Editor-in-charge looks after this process and operation, assisted by line of Editors. The job of Editors is to read the items carefully, rewrite and alter them according to the requisite timeline. Usually, the longest radio bulletin is up to 15 minutes' duration and can carry a little over 1500 words. In short, a radio bulletin can be compared with the front page of a newspaper. If you were asked to read and summarize an eight to ten-page of newspaper into one, this is the process the radio news editors go through. Brevity is the hallmark of any radio news bulletins.

CHECK YOUR PROGRESS – F

1) Distinguish the functioning between National and Regional AIR channels.

7.5 SUMMING UP

This unit gave you a comprehensive understanding of the various organizational structure and hierarchical for smooth functioning of Radio Broadcasting in India. You have learnt different governmental agencies involved in the process of radio broadcasting. We have discussed about the role of newsroom editors, need for speed and sharpness of deadlines for radio. This will help you to understand the how news in radio is produced and what it has to go through.

7.6 QUESTIONS

1. Discuss about the various government agencies in Radio Broadcasting process.

2. State the merits and demerits of several governmental bodies in the broadcasting process.

3. What are the different types of newsroom structure followed in national and state level radio agencies?

7.7 RECOMMENDED READINGS

- Bhatt, S.C., *Broadcast Journalism,* Anand Publication, New Delhi
- McLeish, Robert, *Technique of Radio Production,* Focal Press, London/Boston
- Cohler, David Keith, *Broadcast Journalism,* Prentice Hall, New Jersey, USA

Programme	Eligibility	Programme Coordinator
MA in Mass Communication	Bachelor's Degree in any discipline	Ms. Madhusmita Boruah madhu@tezu.ernet.in 03712-275359 Dr. Uttam Kr. Pegu uttamkp@tezu.ernet.in 03712-275455
MA in English	Bachelor's Degree in any discipline	Dr. Suchibrata Goswami suchitu@tezu.ernet.in 03712-275358 Dr. Pallavi Jha pjefl@tezu.ernet.in 03712-275215
MA in Sociology	Bachelor's Degree in any discipline	Ms. Ankita Bhattacharyya ankita@tezu.ernet.in 03712-275359 Dr. Amiya Kr. Das amiyadas@tezu.ernet.in 03712-275805
PG Diploma in Human Resource Management	Bachelor's Degree in any discipline	Dr. Runumi Das runumi@tezu.ernet.in 03712-275015
PG Diploma in Environmental & Disaster Management	Bachelor's Degree in any discipline	Dr. N. Gogoi nirmali@tezu.ernet.in 03712-275609 Dr. Dipak Nath dipak@tezu.ernet.in 03712-275306
PG Diploma in Renewable Energy and Energy Management	BE/B.Tech or M.Sc in Physics or Chemistry	Dr. S. Mahapatra sadhan@tezu.ernet.in 03712-275306
PG Diploma in Child Rights and Governance	Bachelor's Degree in any discipline	Dr. Subhrangshu Dhar sdhar@tezu.ernet.in

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