



Maspero Summer Training

Name: Hussien Mostafa Mahmoud Abd Elaal

Abstract:

the Radio and Television Union is an independent body that enjoys a legal personality and is headquartered in Cairo Governorate.

The field training was divided into more than one part. I learnt about TV fundamentals and studios, Transmitter System and we visit the TV studios and terrestrial transmission center of the greater Cairo

Introduction:

Egyptian Radio and Television Union is a broadcast media company based out of Cairo, The Radio and Television Union began broadcasting its programs in 1960.

It is the official television broadcasting organization for Egypt. It was under the management of three institutions, namely, a television institution, a radio institution, and a broadcast engineering institution, before merging them later. It is based in Cairo from its famous building called Maspero. Has eight national channels, and several channels broadcast via satellite, and a group of radio stations, featuring several EU media networks and administrative sectors network TV channels Egyptian, network Nile TV , network TV MahrosaEgypt News Center, the broadcasting sector, the broadcast engineering sector, the economic sector, the security sector, and the secretariat sector.

Lectures:

the training was divided into 8 lectures.

First lecture:

- we learned about the difference between signal transmission types (analog and digital) and how the TV and Radio signal are transmitted.
- analog transmission: signal is converted into current or voltage fluctuations that is characterized by being continuously variable along both amplitude and frequency but because of the limited bandwidth that analog facilities have, they cannot support high-speed data transmission.
- Digital transmission: signals are much simpler than analog signal, instead of continuous wave form, digital signal is made of series of pulses that represent either 1s or 0s
- The data (1s & 0s) are transmitted depending on the type of network which can be Electrical transmission of data: it means that 1s are represented by high voltage and 0 bits represented by low voltage (or nothing at all).
- Optical transmission of data: it means that 1s represents the presence of light and 0s represent the absence of light.
- Vacuum/air is a good transmission medium for electromagnetic waves, such as light and radio waves, while material substance can affect the electromagnetic transmission in the form of absorption, reflection, refraction, and interference

In Maspero, there's two kinds of mediums for transmitting TV and audio signals:

- 1- Guided media
- 2- Unguided media

Second lecture:

In this lecture we have learned about the history of the camera and early recording tapes, The black& white and color TV, Difference between Analog and digital TV. And we have gone on a visit to a TV programs studio. During the visit to the studios, we have seen all the devices required for each tv show and we have learned how to use some of them

Main components of a TV studio:

- 1- Camera
- 2- Microphones
- 3- Photo blenders
- 4- Audio mixers
- 5- Recording and display devices
- 6- Synchronization pulse generator
- 7- Lighting network
- 8- Some helping devices: TB, TBC, WF, speakers, etc.

Third lecture:

- Radio studio designs and a visit to Egypt main radio stations
- Most of radio programs are generally live broadcasts, so it's important to design an environment suitable to allow announcers and guests to talk comfortably.
- Radio studios are not only limited to live talks and music playback, but also there's acoustic performances and programs that needs electromagnetic shields depending on the electromagnetic wave conditions.
- There is many typed and purposes of the studios such as Recording studios maybe used to record singers, instrumental musicians (piano, guitar, or ensembles such as orchestras), voice over artists for advertisements or even a dialogue for a film, drama, or animation.
- The typical recording studio consists of a room called “studio” or “live room” equipped with microphones and mic stands, where vocalists, musicians, actors or even news announcers can perform their work.
- A control room, where audio engineers and producers exist to operate professional audio mixing consoles, effects units or computers with specialized software suits to mix, adjust equalization and add effects and route the sound for analog or digital recording.

Types of recording studios:

- 1- Mono recording studios
- 2- Music recording studios
- 3- Drama recording studios

Fourth lecture:

- In this lecture, we learned about the main component of a satellite, and we had a visit to Maspero's main satellite transmission center.
- The satellite is a self-contained communication system with the ability to receive signals from earth and transmit those signals back with the use of the transponder (an integrated transmitter and receiver for microwaves).
- Satellites must be light as the cost of launching satellites depends on its weights. They must operate at a very high reliability of more than 99.9 percent in the vacuum of space with no respect of maintenance or repair.
- A satellite needs its own propulsion system to get itself to the right orbital location and to make occasional corrections to that position.
- The maintenance of a satellite's orbital position is called "station keeping," and the corrections made by using the satellite's thrusters are called "attitude control."
- A satellite's life span is determined by the amount of fuel it must power these thrusters. Once the fuel runs out, the satellite eventually drifts into space and out of operation, becoming space debris.
- Satellite components that can be exposed to radiation are shielded with aluminum and other radiation-resistant material. A satellite's thermal system protects its sensitive electronic and mechanical components and maintains it at its optimum functioning temperature to ensure its continuous operation, a satellite's thermal system also protects sensitive satellite components from the extreme changes in temperature.

- The frequencies reserved for the satellite microwave communication are in Gigahertz (GHz) range. Each satellite sends and receives over two different bands. Transmission from earth to satellite is called the Uplink. Transmission from the satellite to the earth is called the Downlink, while Uplink and downlink frequencies must be different to avoid interference
- Satellites applications: Broadcasting services include radio and television delivered directly to the consumer and mobile broadcasting services, Satellites also play an important role in delivering programming to cell phones and other mobile devices, such as personal digital assistants and laptops.

The main components of a satellite:

- 1- Antennas and transponders: receive and transmits signals.
- 2- Power system: includes solar panels.
- 3- Propulsion system: which includes rockets that propel that satellite

Satellites can be divided into three categories as follows:

- 4- GEO stands for Geostationary Earth Orbit.
- 5- MEO stands for Medium Earth Orbit.
- 6- LEO stands for Low Earth Orbit

Fifth Lecture:

This lecture was mainly a visit to the Terrestrial transmission center of the greater Cairo.

We learned about terrestrial transmission of TV and Radio signals starting from studios passing to EL Mokattem and then to the greater Cairo (includes Cairo, Giza and Qaliobia)

Sixth Lecture:

In this lecture we talked about the News cast studios:

- Text Sources are an important part of writing a story. Sources help journalists gain knowledge about events, people, places, and trends. Sourcing information also helps journalists build trust with the public. They provide the researcher with the information closest to the time or topic at hand. They also allow the writer to conduct an original analysis of the source and to draw new conclusions.
- Video Ingest is the process of capturing, transferring, or otherwise importing different types of video, audio, or image media into editing tools to use it in a program, Types of video editing: linear editing systems and non-linear editing systems
- Graphics TV news graphics package is a collection of computer-generated graphics that are used together throughout a television news program.
- Newsroom computer system, Used to Manage news feeds, research, planning, assignments, scripts and newscast rundowns.

Seventh Lecture:

In this lecture, we learned about transmission links in fiber cables,
Transmission links in microwave

Eighth Lecture:

- In this lecture, we learned about manual and automation systems, Servers, and we have gone to a visit to servers' room.
- **Playout** In broadcasting, channel playout is the generation of the source signal of a radio or television channel produced by a broadcaster, coupled with the transmission of this signal for primary distribution or direct-to-audience distribution via any network.
- **Playout Centers:** Playout is one of the basic infrastructures of a playout center. Mostly called as channel in a box server, but basically composed of playout servers with integrated graphics and IP or ASI output. Aim of playout centers is mostly to serve customers a simple file-based television facility. Uplink and TV Channel in a box server simply provide the facility.
- **Scheduling:** The playout system executes a scheduled and time-accurate playlist of content to generate a linear radio or television signal.

Playout devices:

- 1- Graphics inserters
- 2- Subtitling inserters
- 3- Audio servers
- 4- Aspect Ratio Converters

Conclusion:

Taking this field training was great experience to know how big communication system like. Knowing all the details and cases that might happen and how overcome it and the difference between radio devices and the usage of every one of them