AMPLITUDE MODULATION: SCIENCE & TECHNOLOGY

NEWS : What are AM, FM, and signal modulation?

WHAT'S IN THE NEWS ?

Signal modulation simplifies the technologies required to transmit signals carrying information, like the news on TV or songs on the radio

AM (Amplitude Modulation)

- Encodes information by varying the amplitude of a constant frequency carrier wave.
- Amplitude changes represent audio signals; higher amplitudes correspond to louder sounds.
- Used in AM radio broadcasts; more susceptible to noise and interference.

FM (Frequency Modulation)

- Encodes information by varying the frequency of the carrier wave.
- Frequency changes with the amplitude of the input signal.
- Provides better sound quality and less prone to interference; used in FM radio broadcasts.

Signal Modulation

- Technique to encode information onto a carrier wave for transmission.
- Types include AM, FM, and PM (Phase Modulation).
- Modulation helps transmit signals over long distances and reduces interference.

Phase Modulation (PM)

- Encodes information by varying the phase of the carrier wave.
- Common in digital communication; less affected by interference.

Analog vs. Digital

- AM and FM are analog techniques, while PM is often used in digital communication.

Advantages of Modulation

- Allows multiple signals to share the same channel.
- Enhances signal quality by minimizing noise and static.

Source: https://www.thehindu.com/sci-tech/science/what-are-am-fm-and-signal-modulation-explained/article68641239.ece