## **GSM (Global System for Mobile Communications)**

## **GSM Architecture:**

1. **3-Part Structure (The Core):** GSM is logically divided into three main subsystems: **Mobile Station (MS)** (your phone/SIM), **Base Station Subsystem (BSS)** (towers and controllers), and **Network Switching Subsystem (NSS)** (the core switching brain).
2. **BSS is the Radio Link Manager:** The BSS (Tower + Controller) manages all wireless communication with your phone, including **frequency allocation** and the crucial process of **handover** (passing a call from one tower to the next as you move).
3. **NSS is the Brain & Database:** The NSS contains the **MSC (Switch)**, which routes all calls and messages, and two vital databases: **HLR** (Home Location Register - permanent user details) and **VLR** (Visitor Location Register - temporary location data).
4. **SIM Card Pioneer:** GSM was the technology that introduced the concept of the **Subscriber Identity Module (SIM)**. The SIM separates the user's identity from the mobile phone hardware, making user mobility and security easier.
5. Initially designed for voice communication, later supporting SMS, MMS, and low speed data services.

