

# Experiment 4:



MOBILE NETWORK PROTOCOLS

## ← Physical Layer

- 1.Handles transmission of raw bits over the wireless medium.
- 2.Manages modulation, signal strength, frequency selection, and antenna transmission.
- 3.Technologies: GSM, CDMA, LTE, 5G NR (New Radio).



## ← Data Link Layer

- 1.Ensures reliable data transfer between mobile devices and base stations.
- 2.Handles error detection and correction.
- 3.Uses Medium Access Control (MAC) and Logical Link Control (LLC) sublayers.
- 4.Protocols: LTE MAC, RLC (Radio Link Control).



## ← Network Layer

- 1.Responsible for addressing, routing, and mobility management.
- 2.Handles handover when a device moves between cells.
- 3.Protocols: IP (Internet Protocol), GTP (GPRS Tunneling Protocol), Mobile IP.



## ← Transport Layer

- 1.Provides end-to-end communication between devices.
- 2.Ensures reliable or connectionless data transfer.
- 3.Protocols: TCP (for reliability), UDP (for speed), SCTP (for signaling in mobile networks).



## NETWORK LAYERS

Physical layer

Data Link Layer

Network Layer

Transport Layer

Session Layer

Presentation Layer

Application Layer

## ← Session Layer

- 1.Manages sessions and connections between mobile applications.
- 2.Handles authentication and re-establishment of lost connections.
- 3.Protocols: SIP (Session Initiation Protocol) for VoIP calls.



## ← Presentation Layer

- 1.Handles data encryption, compression, and format conversion.
- 2.Ensures interoperability between different devices and applications.
- 3.Technologies: TLS/SSL (for security), Codecs (for audio/video streaming)



## ← Application Layer

- 1.Provides end-user services like web browsing, messaging, and streaming.
- 2.Includes mobile applications and network services
- 3.Protocols: HTTP, HTTPS, FTP, SMTP, VoLTE, VoNR.

