



NSCET E-LEARNING PRESENTATION

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

III YEAR / VI SEMESTER

EC8004– WIRELESS NETWORK

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UNIT V

4G AND BEYOND

INTRODUCTION

- 4G mobile system mainly concentrate on seamless integration of existing wireless technologies including WWAN,WLAN and Bluetooth.
- 4G – Interoperable with 2G and 3G systems

Key Parameters of 3G with 4G

S.No	Detail	3G	4G
1	Architecture	wide area cell based network	Hybrid of WLAN
2	Speed	384 kbps to 2 Mbps	20 to 100 Mbps
3	Switching	Both circuit and packet	All digital with packetized voice
4	IP	IPV 5.0	All IP
5	Mobile top speed	200 km/h	200km/h

4G Vision

4G can be defined as MAGIC

- ❖ Mobile Multimedia
- ❖ Anytime Anywhere
- ❖ Global mobility support
- ❖ Integrated wireless solution
- ❖ Customized personal service

- Seamless Connection

The key infrastructure of 4G is to access information anywhere ,anytime with a seamless connection to a wide range of information and service data pictures video and so on

Features and Challenges of 4G

Features:

- High usability
- Support for multimedia and with any technology services
- Personalization
- Integrated services

Challenges :

- Based on mobile station
- Based on system
- Based on service

Applications of 4G

- Virtual Presence
- Virtual navigation
- Tele medicine

4G Technology

- Multicarrier modulation (MCM)
- Smart Antenna Techniques
- OFDM –MIMO Systems
- Adaptive Modulation and Coding with Time – Slot Scheduler
- Cognitive Radio

- Multicarrier Modulation – derivative of frequency division multiplexing

Multicarrier systems- Digital Audio and video broadcasting

Advantages - Better performance

Drawbacks – Increases the peak to average ratio of the signal

- Smart Antenna Technique – Antenna elements are intelligently combined to improve the performance of the wireless system.
- They are,
 - ❖ Single – Input ,single – output (SISO)
 - ❖ Single – Input , Multiple – Output (SIMO)
 - ❖ Multiple – Input, Single – Output (MISO)
 - ❖ Multiple – Input, Multiple – Output (MIMO)

LTE Network Architecture

- LTE – Long term Evolution
- Support only packet switched services
- Provide seamless Internet protocol (IP) connectivity between user Equipment and the packet data network



THANKS!