**Unit-V: Advanced Transceiver Schemes**

**Session -1 Orthogonal Frequency Division Multiplexing 19.09.2013, 5th period**

* **Recall by keyword**

1. Spread spectrum
2. CDMA

* **Presentation**
* **Quiz**

1. State the principle of OFDM system?
2. Draw transceiver implementation?
3. Compare analog and digital implementation?

**Session -2 Code Division Multiple Accessu 24.09.13, 4th period**

**Recap by key words**

* **Spread spectrum**
* **Direct sequence**
* **Frequency hopping**
* **Slow,fast hopping**
* **Pn sequence**
* Presentation by slides
* Chart preparation

**http://www.youtube.com/watch?v=LD5zjFkeyiM(cdma)**

conclusion by questions

1.compare cdma/tdma/fdma

**Session -3 Spread Spectrum 24.09.13, 5th period**

* **Unspoken words**

1. Jamming
2. interference
3. PN sequence
4. Walsh code

* **Presentation**
* [**http://www.youtube.com/watch?v=2oa7pyQchT8&feature=related**](http://www.youtube.com/watch?v=2oa7pyQchT8&feature=related)
* [**http://www.youtube.com/watch?v=55Ig4wHfWIA&feature=related**](http://www.youtube.com/watch?v=55Ig4wHfWIA&feature=related)
* **Recall by keywords**
* DS-SS
* FH-SS
* **Recall by keywords**
* Spread spectrum
* Bandwidth
* principle
* security
* anti jamming capability
* spectrum utilization
* DS-SS
* operation
* Tx-RX
* FH-SS/ FHMA
* Principle
* Types
* **Quiz**

1. List and briefly define two classes of FH-SS.
2. Write two common techniques used to protect a data?
3. List out three benefits that can be provided by spread spectrum system?
4. Difference between slow and fast hopping?
5. Compute merits of SS?
6. Compare DS-SS and FH-SS?
7. Few points about PN sequence?

**Session -4 Code Division Multiple Access 03.10.13, 2nd period**

* Recap by key words
* Fdma
* Tdma
* cdma

Presentation by slides

* Video: <http://www.youtube.com/watch?v=SCmKGsEWImg>
* Conclusion by Quiz

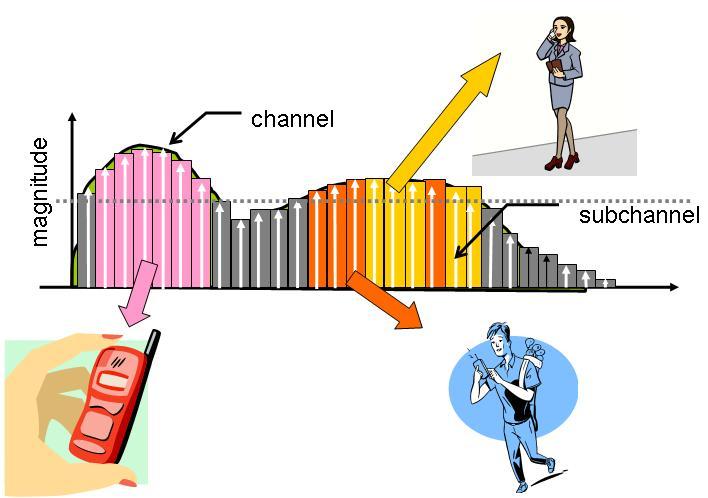
1. Enumerate the role of CDMA in 2G?
2. Discuss on effects of Multipath Propagation on Code Division Multiple Access
3. In general terms, power control means?
4. Draw RAKE receiver.
5. State the principle behind RAKE receiver?

**Session -5 Cellular Code-Division-Multiple-Access Systems 04.10.13, 8th period**

Video: <http://www.youtube.com/watch?v=qy0-X7CTqss>

* Presentation
* Recall by keyword
* Principle Behind Code Division Multiple Access
* Methods to increase capacity
* Quiz

1. Enumerate on power control?
2. List out the Methods to increase capacity.
3. Briefly describe the cellular CDMA.

**Session -6 Orthogonal Frequency Division Multiplexing** 05.10.2013, 7th period ****

Show and tell

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**Presentation by slides**

**Remember by keyword**

1. multiple carrier
2. MIMO
3. FDM/OFDM

* **Remember by keyword**
* **Quiz**

1. List the design goals of OFDM.
2. List the techniques used by OFDM.
3. Role of cyclic prefix?
4. Applications of OFDM?

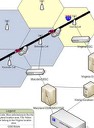
**Session -7 GSM 10.10.2013, 8th period**

**Recall by words:**

1G standards

2G

3G

**Presentation:** [](http://www.rentit.hu/dinamikus_kepek/Cikkkepek/gsm-2.jpg)

Recall by keywords

* Bandwidth
* Uplink, downlink frequency
* Multiple access scheme
* BSS,NSS and OSS
* Logical channels
* Power control
* Super Frame structure
* Services of GSM

**Session -8 Interim Standards (IS-95) 17.10.2013, 2nd period**

* **Presentation**
* **Quiz**
* What are the differences among the two standards.
* In the context of power control, what is the difference between open loop and closed loop?
* Differentiate dedicated and common channels?
* State the significance of SIM card

**Session -9 3 G Standards 26.10.2013, 6th period**

* **Presentation**
* **Quiz**
* What are the differences among the 2 G and 3G standards.
* In the context of standards, what is the UMTS?
* Few words about 3GPP?
* State the significance of 4G