BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
INSTRUCTION DIVISION
SECOND SEMESTER JAN. 2016
Course Handout (Part- II)

Date: 05.01.2016

Course No. **: EEE F431**
Course Title **: Mobile Telecommunication Networks**
Instructor-in-Charge **: Sainath Bitragunta**

Scopes and Objective:
This course provides an introduction to the field of mobile telecommunication systems and networks. The first (1G) and second generation (2G) mobile systems will be reviewed first. Later, signal propagation, modulation and demodulation, and diversity techniques etc. employed in mobile wireless networks will be emphasized. In a nutshell, concepts of the first three layers of ISO model, namely, physical, link, and network layer will be emphasized.

Architectural and functional discussion of mobile cellular standards like GSM, CDMA will also be facilitated at the basic level. Current and future trends in mobile telecom networks will also be discussed.

References:

"Wireless and cellular telecommunications" by William C.Y. Lee, third Ed. McGrawHill, 2006.

"Wireless Communication Principles and Practice" by Theodore. S. Rappaport Second Ed. Pearson education, 2010.

"Wireless and Mobile Network Architectures" by Yi-Bing Lin and Imrich Chaltamac, Wiley, 2001.

"Principles of mobile communication" by Stuber Gordon L., third edition, Springer 2013.

http://www.3gpp2.org http://www.3gpp.org http://www.itu.int/osg/

Course Plan :

Lecture No.	Topic to be covered	Learning Objective	Ref.
1-2	General Introduction	History of mobile communication, 1G	**Class notes/PPT**
3-4	Modern mobile wireless Systems	Second Gen. Wireless Systems	**--do--**
5-6	Cellular Concept	Frequency Reuse, Radio Coverage range and related concepts	**--do--**
7-9	Mobile Signal Propagation	Different propagation models and limitations	**--do--**
10-12	Multipath fading, shadowing	Small scale fading and models	**--do--**
13-14	Wireless Antenna system design	Antenna effects and system Characterization	**--do--**
15-18	Modulation /Demodulation	Linear and non linear modulation	**--do--**
19-21	Link Improvements	Diversity and Equalization Techniques	**--do--**
22-24	Multiple Access	FDMA,TDMA,CDMA,OFDMA	**--do--**
25-27	GSM Networks	Radio subsystem, Architecture and operation	**--do--**
28-30	IS-95	CDMA standard and operation concepts	**--do--**
31-34	3G	CDMA 2000, EV-DO	**--do--**

35-38	4G	LTE, LTE advanced	**Class notes/PPT**
39-42	5G and beyond	5G mobile networks, SDMN	**--do--**

Evaluation Scheme:

EC No	Component & Nature	Duration	Weightage	Date& time	Nature
1	Mid-Sem test	90 mins	30%	-	CB
2	Quizes	40 mins	20%	To be announced in the class	CB
3	Assignments	----	10%		----
4	Compre.Exam	3 hrs	40%	9/5 FN	CB/OB

Chamber Consultation Hour: To be announced in the class.

Course Notice: Will be posted on group webpage.

Instructor-in-Charge
EEE F431