Focus Areas for the Master Course Lecture
Mobile Communications, WS 2020, V5.4
Prof. Dr. Chen

1. Media Access Schemes: SDMA, FDMA, TDMA, CDMA, OFDM etc.
2. System Architecture of DECT , C-Plane, U-Plane
3. TETRA Network Architecture (i.e. in Germany BOS)
4. Different types of DMO, AI, PEI, Security Issues (Authentication, End to End Encryption)
5. GSM System Architecture, NSS, OSS, BSS/RSS and Components (MSC, BSC, BS/BTS, MS, VLR, HLR, EIR, AUC etc.)
6. GSM 850, GSM 900, GSM 1800, GSM 1900, GSM-R, FDMA/TDMA
7. Handover Margin, MTC, MOC
8. HSCSD vs. GPRS, Measures for EDGE
9. UMTS Architecture, Interoperability with GSM (Voice and Packet Core) with BSS and UTRAN, CDMA
10. Core Network, UTRAN (NodeB, RNC), Soft-Handover UTRA FDD
11. HSDPA / HSUPA
12. Breathing Cells effect of UMTS CDMA
13. Tasks of OVSF code and Scrambling Code, DPDCH/DPCCH, Relations of Chip rate / SF / Bit rate
14. Features of LTE (4th Generation), Media Access Schemes OFDM, OFDMA DL, SC-FDMA UL
15. Basic System Architecture LTE: IMS, EPC (HSS, MME, PCRF, S-GW, P-GW), E-UTRAN, eNodeB, UE, MIMO, OFDM
16. 5G Features, Multi-RAT, Massive MIMO, Network Slicing, SDN, NFV, Throughput, Latency, MTC
17. Cellular Mobile Network Planning and Optimization Steps
18. Traffic Forecast, Traffic Engineering (Erlang B, 2% Blocking or GoS), Nominal Cell Planning, Cell count, Transmission Network Planning, Optimization