

DC	Description of the Course	2
DC.1	Radio Networks	½
DC.2	Trends	½
DC.3	Course	1
INT	Introduction	3
INT.1	Digital Transmission	1
INT.2	Radio Channel	1
INT.3	Networks	½
INT.4	Reference Standards: 802.11 and GPRS	½
DTN	Digital Transmission in Noise Limited Systems	11
DTN.1	Communication Link: System Model	½
DTN.2	Signal Based Power Control	½
DTN.3	Link Performance (BER) of M-QASK in AWGN	1 ½
DTN.4	Link Adaptation	½
DTN.5	Equalization	½
DTN.6	FEC, ARQ, HARQ	1 ½
DTN.7	Link Performance (BLER) and Capacity in AWGN	½
DTN.8	Radio Resources (Physical Channels)	1
DTN.9	Assignment of Radio Resources	1 ½
DTN.10	Exercises	2
ORN.1	Overview on Digital Transmission	1
LRC	Link Level: Radio Channel	6
LRC.1	Radio Channel Characterization	½
LRC.2	Large Scale Phenomena	½
LRC.3	Small Scale Phenomena	1
LRC.4	Narrowband Mobile Radio Channel	½
LRC.5	Radio Channel for Short Range Communication Systems	½
LRC.6	Link Performance in the Presence of Fading	½
LRC.7	Gilbert-Elliot Model	½
LRC.8	Area Coverage Probability	1
LRC.9	Exercises	1
LCF	Link Level: Countermeasures to Fading	8
LCF.1	Interleaving	½
LCF.2	Adaptive Modulation and Coding	½
LCF.3	Diversity	1
LCF.4	Direct Sequence Spread Spectrum	1
LCF.5	Frequency Hopping Spread Spectrum	½
LCF.6	MultiCarrier Modulation	½
LCF.7	Link Performance with FEC and Diversity	1
LCF.8	System Model Revisited	½
LCF.9	Exercises	1 ½
ORN.2	Overview on Channel	1
DTI	Digital Transmission in Interference Limited Systems	10
DTI.1	Communication Link with Interference: System Model	½
DTI.2	Interference Based Power Control	½
DTI.3	Linear and Non Linear Demodulation	½
DTI.4	Link Performance (BER) of M-QASK with Interference	1 ½
DTI.5	Link Performance (BLER) and Capacity in AWGN with Interference	1
DTI.6	Link Spectrum Efficiency Revisited	½
DTI.7	Capture Effect	½
DTI.8	Direct Sequence Spread Spectrum with interference	1
DTI.9	Link Level Outage Probability with Fading and Interference	1
DTI.10	Impact on Interference of Countermeasures to Fading	1
DTI.11	Interference Based Power Control from a Network Level viewpoint	1
DTI.12	Exercises	1
NLG	Network Level: Graphs	3
NLG.1	Basics of Graphs	1
NLG.2	Communication and Interference Graphs	1
NLG.3	Exercises	1
NMA	Network Level: Medium Access Control	11
NMA.1	Fundamentals of Random MAC: Aloha, CSMA	1
NMA.2	Aloha and S-Aloha in Compact Networks: Throughput Analysis	1
NMA.3	CSMA in Compact Networks: Throughput Analysis	1
NMA.4	CSMA in Sparse Networks: Hidden and Exposed Node Problem	1
NMA.5	Bianchi's Model	2
NMA.6	CSMA in multi-hop networks	1
NMA.7	Scheduling	2
NMA.8	Exercises	2
NMH	Network Level: Multi-Hop Networks	4
NMH.1	Network Topologies	½
NMH.2	Topology Control in Mesh Networks	½
NMH.3	Routing in Multi-Hop Networks	1
NMH.4	Dijkstra Algorithm	1
ORN.3	Overview on Networks	1
IOT	Internet of Things	5
IOT.1	Introduction	½
IOT.2	Wireless Sensor Networks (802.15.4)	1 ½
IOT.3	Machine Type Communications and Long Range Systems	1
IOT.4	IoT Applications	1
IOT.5	Network Architectures	1
DC2	Description of the Course #2	1