Course Description – Summer 2020

Title	Communication Networks
Faculty	Electrical Engineering
Professor	Prof. Dr. Carsten Roppel
ECTS	5
Level	Bachelor
Requirements	-
Add. Information	Lecture and laboratory exercises
Content	1 Design Principles The OSI Reference Model, Network Topologies, Circuit Switching and Packet Switching, Error Detection and Correction, Automatic Repeat Request (ARQ), Dimensioning: Queueing Models for Packet Switched Networks and Circuit Switched Networks 2 Transport, Access and Local Area Networks Synchronous Digital Hierarchy (SDH), Digital Subscriber Line (DSL), Cable Modems, LANs 3 Quality of Service and Traffic Management Performance Parameters at the Application/Packet/Bit Level, Traffic Parameters, Leaky Bucket, Token Bucket, Traffic Control Functions 4 Internet Protocol (IP) Basic Concepts, Addressing and Routing, Transport Protocols (TCP, UDP), Quality of Service and Traffic Management (IntServ, DiffServ, MPLS), Voice over IP (VoIP), IP Version 6 5 Real-Time Services over Packet-Switched Networks Voice over IP (VoIP), Real-Time Transport Protocol (RTP), Session Initiation Protocol (SIP), Real-Time Streaming Protocol (RTSP), Line Emulation 6 Asynchronous Transfer Mode (ATM) Basic Concepts, Protocol Reference Model, Packet Switches, Traffic Management 7 Integrated Services Digital Network (ISDN) ISDN Access (Basic Rate Access, Primary Rate Access), Switch Architectures, Signalling