

## Course Description – Summer 2021

<b>Title</b>	Communication Networks
<b>Faculty</b>	Electrical Engineering
<b>Professor</b>	Prof. Dr. Carsten Roppel
<b>ECTS</b>	5
<b>Level</b>	Bachelor
<b>Requirements</b>	
<b>Add. Information</b>	Lecture and laboratory exercises
<b>Content</b>	<p>1 Design Principles</p> <p>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</p> <p>2 Transport, Access and Local Area Networks</p> <p>Synchronous Digital Hierarchy (SDH), Digital Subscriber Line (DSL), Cable Modems, LANs</p> <p>3 Quality of Service and Traffic Management</p> <p>Performance Parameters at the Application/Packet/Bit Level, Traffic Parameters, Leaky Bucket, Token Bucket, Traffic Control Functions</p> <p>4 Internet Protocol (IP)</p> <p>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</p> <p>5 Real-Time Services over Packet-Switched Networks</p> <p>Voice over IP (VoIP), Real-Time Transport Protocol (RTP), Session Initiation Protocol (SIP), Real-Time Streaming Protocol (RTSP), Line Emulation</p>

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