

**Minor Field of Comprehensive
Examination**

Communication Networks and Protocols

Syllabus

The working mechanisms of the different switching technologies (packet, circuit, cell switching). Mobile and broadcasting networks. The technologies of the new generation mobile communication.

Computer networks, protocol technology, protocol graphs, finite state machines. Protocol specification languages (SDL, MSC, ASN1, TTCN). Protocol validation and verification.

TCP/IP and OSI networking. Reference models, protocols, interfaces, services. System analysis and planning for communication networks. Multiple paths communication technologies. Named networking. Routing, flow control, error management. Next generation and Software Defined Networks.

Bibliography

1. Richard Lai, Ajin Jirachiefpattana: Communication Protocol Specification and Verification (The Springer International Series in Engineering and Computer Science), ISBN-13: 978-1461375371, 2013.
2. Hartmut König: Protocol Engineering, Springer, ISBN-13: 978-3642440939, 2014.
3. Andrew S. Tanenbaum, David J. Wetherall: Computer Networks (5th Edition), Pearson, ISBN-13: 978-0132126953, 2010.
4. Regis "Bud" Bates, Donald Gregory: Voice & Data Communications Handbook, Fifth Edition (McGraw-Hill Communication Series), ISBN-13: 978-0072263350, 2006.
5. RFC and RFC Draft documents; <http://www.ietf.org/>
6. IEEE Communications Society, Standards and Specifications <http://www.comsoc.org/>