

Advanced Topics in Networking

(in German: Advanced Topics in Networking)

Module-ID: FIN-INF-140014

Link:	LSF
Responsibility:	David Hausheer
Lecturer:	David Hausheer
Classes:	• Lecture <i>Advanced Topics in Networking</i> • Exercise <i>Advanced Topics in Networking</i>
Applicability in curriculum:	- M.Sc. INF: Informatik - M.Sc. INGINF: Informatik - M.Sc. WIF: Informatik - M.Sc. DE: Methoden der Informatik - M.Sc. DE: Fachliche Spezialisierung - M.Sc. VC: Computer Science

Abbreviation	Credit Points	Semester	Term	Duration	Language	Level
ATN	6	Winter	ab 1.	1 Semester	english	Master

Intended learning outcomes:

Students...

- enhance their competence in the area of networking
- understand advanced networking concepts
- can explain these concepts to other participants
- are able to apply these concepts in theoretical use cases and practical network applications

Content:

The course deals with advanced topics in the area of networking:

- Overlay networks for content delivery, e.g., P2P, BitTorrent, CDNs, caching, overlay video streaming
- Distributed Hash Tables (DHT), e.g., Kademlia
- Blockchains
- Crypto currencies and Bitcoin
- Ethereum and smart contracts
- Secure network architectures, e.g., SCION
- Congestion Control, e.g., QUIC and Multipath-QUIC

Workload:

- 28h lectures
- 6h practical exercises
- 146h homework (further studies, theoretical exercises, preparation for the final exam)

Pre-examination requirements:	Type of examination:	Teaching method / lecture hours per week (SWS):
	Written exam 120 minutes	• Lecture 2 SWS • Exercise 2 SWS

Prerequisites according to examination regulations:	Recommended prerequisites:
none	Modul <i>Computernetze</i>

Media:	Literature:
	Textbooks as indicated. Slides and paper copies as necessary.

Comments:

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