Advanced Topics in Networking

Winter

(in German: Advanced Topics in Networking)

Module-ID: FIN-INF-120518

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

Link:	LSF
Limited accessability:	
Responsibility:	David Hausheer
Lecturer:	David Hausheer
Classes:	• Lecture *Advanced Topics in Networking* • Exercise *Advanced Topics in Networking*
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 - M.Sc. DKE: Data Processing for Data Science

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 exercises
- gain expertise in 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
- 22h theoretical exercises
- 6h practical exercises
- 124h homework (further studies, practical work, preparation for the final exam)

Pre-examination requirements:	**Type of examination:**	**Teaching method / lecture hours per week (SWS):**
Prerequisites for the exam required; details will be announced at the beginning of the semester.	Written exam 120 minutes	• Lecture 2 SWS • Exercise 2 SWS

Prerequisites according to examination regulations:	**Recommended prerequisites:**
none	Modul *Computernetze*

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

Comments:

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