

Only the german version of the module description as part of the study regulations is legally binding.

Module number	Module name	Responsible lecturer
INF-DSE-23-E-IM	Internet measurements	Prof. Dr. Wählich m.waehlich@tu-dresden.de
Qualification objectives	After completing the module, students will be familiar with practical methods to measure and evaluate globally distributed communication infrastructures, services and applications offered and used by different parties. They know the technologies, concepts and protocols necessary for operation, can design measurements and experiments, and analyze networks. They are able to identify the associated issues. Furthermore, the students have basic knowledge in the field of network and Internet security and are able to efficiently evaluate large data sets.	
contents	This module focuses on the question of how the Internet is built inside and how the services and applications based on it are distributed. Current communication standards and their further development as well as typical implementations on the global Internet are discussed and current solutions from research are presented in order to measure the technologies used. Using concrete examples, it is shown how the spread of traditional and novel network protocols (e.g. BGP, IPv6, DNSSEC, QUIC) can be quantified and what limits there are. The presented Internet measurements are applied to network security and performance evaluation.	
Forms of teaching and learning	2 SWS lectures, 2 SWS exercises, self-study The teaching language of the lecture can be German or English and will be determined by the lecturer at the beginning of each semester and announced in the usual way.	
Requirements for participation	Knowledge and skills about the basics of computer networks at bachelor level are required.	
usability	The module is a compulsory elective module of specialisation in the Distributed Systems Engineering master's programme.	
Conditions for awarding points	The credit points are acquired when the module examination has been completed. The module examination consists of a project work of 45 hours and an exam of 90 minutes. Both examinations must be passed.	
Credits and grades	6 credit points can be earned through the module. The module grade results from the weighted average of the grades of the two examinations. The exam work is weighted threefold and the complex performance is simply weighted.	
Frequency of the module	The module is offered every winter semester.	

workload	The total workload is 180 hours.
Duration of the module	The module covers one semester.