

# Software Defined Networking

Summer

(in German: Software Defined Networking )

**Module-ID: FIN-INF-110528**

| Abbreviation | Credit Points | Semester | Term           | Duration   | Language | Level    |
|--------------|---------------|----------|----------------|------------|----------|----------|
| SDN          | 5             | Summer   | starting at 5. | 1 Semester | english  | Bachelor |

|                                     |                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Link:</b>                        | <a href="#">LSF</a>                                                                                                                                                                                                                                                                                     |
| <b>Limited accessibility:</b>       | false                                                                                                                                                                                                                                                                                                   |
| <b>Responsibility:</b>              | David Hausheer                                                                                                                                                                                                                                                                                          |
| <b>Lecturer:</b>                    | David Hausheer                                                                                                                                                                                                                                                                                          |
| <b>Classes:</b>                     | <ul style="list-style-type: none"><li>• Lecture <i>Software Defined Networking</i></li><li>• Exercise <i>Software Defined Networking</i></li></ul>                                                                                                                                                      |
| <b>Applicability in curriculum:</b> | <ul style="list-style-type: none"><li>- B.Sc. INF: Informatik - Wahlpflicht</li><li>- B.Sc. CV: Informatik - Wahlpflicht</li><li>- B.Sc. INGINF: Informatik - Wahlpflicht</li><li>- B.Sc. WIF: Gestalten und Anwenden - Wahlpflicht</li><li>- B.Sc. INF (bilingual): Informatik - Wahlpflicht</li></ul> |

## Intended learning outcomes:

Students...

- gain competence in the area of software defined networking
- understand software defined networking concepts
- can explain these concepts to other participants

- are able to apply these concepts in theoretical use cases and practical exercises

### Content:

The course deals with topics in the area of software defined networking:

- SDN Architecture (Application, Control, Infrastructure Layer)
- SDN Interfaces (North/South-bound vs. East/West-bound interface)
- SDN Applications and Use Cases (e.g. Multicasting)
- Network Virtualization and Slicing (e.g. FlowVisor)
- Network Function Virtualization (NFV) and
- Network Service Chaining
- SDN Security Network Operating Systems and Languages
- OpenFlow Controller (e.g. NOX, Beacon, etc.)
- Hardware Switches (e.g. NEC IP8800, Pronto) vs. Software Switches (e.g. NetFPGA, OpenVSwitch)
- SDN in Wireless Networks (e.g. OpenWRT)

### Workload:

- 28h lectures
- 22h theoretical exercises
- 4h practical exercises
- 96h homework (further studies, 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 | <ul style="list-style-type: none"> <li>• 2 SWS lecture</li> <li>• 2 SWS exercise</li> </ul> |

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

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

### Comments:

In der letzten SPO ist dieses Modul als WPF im Modulbereich *Technische Informatik* anrechenbar.

