D U A L E H O C H S C H U L E
Baden-Württemberg
Studienbereich Technik

Implementation of Distributed systems

Formale Angaben zum Modul	
Studiengang	**Studienrichtung**
Informatik	Informatik

Modulbezeichnung	**Sprache**	**Modulcode**	**Version**	**Modulverantwortlicher; Standort**
Implementierung verteilter Systeme				Till Hänisch; HDH
Modulbezeichnung Englisch				
Implementation of distributed systems				

Studienjahr	**Modulart**	**Moduldauer**
Second year		1 semester

Teaching methods	
Lehrformen	lecture, lab
Lernmethoden	lecture, discussion, group work

Form of examination	**Exam duration (in min)**
Combined examination	

Workload und ECTS			
Total workload (in hours)	**of which interactive**	**of which self-study**	**ECTS-Leistungspunkte**
150	60	90	5

Qualification goals and competences	
Professional competence	Students are able to apply methods and techniques from distributed systems theory (T3INF4306) (distributed computing) to a real and complex problem from practice. They know relevant security techniques: distributed computing, decentralized application frameworks, implementation issues in distributed systems, principles of distributed ledger technology
Methodical competence	Upon completion of the module, students are able to select appropriate methods and techniques for a given problem: Develop data processing applications, use concurrent programming, apply ICT systems theory
Personal and social competence	The students can solve a complex problem as a team: working in teams, organising, planning and scheduling work and activities

Interdisciplinary competence	-

Learning units and contents		
Learning units	**interactive**	**Self-study**
Security in distributed systems	**24**	**36**
Contents - Security in distributed systems (identify ICT system weaknesses) - Scalability, Consistency, Availability(align software with system architectures, protecting ict devices, apply information security policies) - Advanced topics		
Lab Distributed systems	**36**	**54**
Contents Implementation issues in distributed systems, decentralized application frameworks, principles of distributed ledger technology		

Besonderheiten und Voraussetzungen
Specifics
-

Prerequisites
Grundlagen verteilter Systeme, z.B. Softwarequalität und Verteilte Systeme (T3INF4306), distributed computing

Literature
- Coulouris, J.Dollimore, T.Kindberg, Distributed Systems: Concepts and Design, Pearson - A.S. Tanenbaum, Distributed Systems: Principles and Paradigms, Prentice Hall

ESCO skill	URI
distributed computing	http://data.europa.eu/esco/skill/897b393f-e7e0-4248-a40d-d77119694e83
decentralized application frameworks	http://data.europa.eu/esco/skill/251b5528-693c-4ef9-a7f6-9924bb8d7ef8
implementation issues in distributed systems	
principles of distributed ledger technology	http://data.europa.eu/esco/skill/3be79ccc-a455-49b9-8c65-55c50071ba5b
Develop data processing applications	http://data.europa.eu/esco/skill/f9670490-8aa4-4540-b121-d440a8294aab
use concurrent programming	http://data.europa.eu/esco/skill/25b291b5-8245-4d9d-b391-86a8a31d7109
apply ICT systems theory	http://data.europa.eu/esco/skill/cbe2c304-1e7d-489a-97d9-a7d3e37a9db6
identify ICT system weaknesses	http://data.europa.eu/esco/skill/dad7e408-162f-46a4-8567-db560e19e2fc
protecting ict devices	http://data.europa.eu/esco/skill/S5.2.2

apply information security policies	http://data.europa.eu/esco/skill/86d2e2ea-1ba2-4aa6-b465-8a1f9abc81b8
working in teams	http://data.europa.eu/esco/skill/S1.8.1
organising, planning and scheduling work and activities	http://data.europa.eu/esco/skill/S4.2.0