TECHNISCHE HOCHSCHULE LÜBECK

Module: Information Systems

Level	Bachelor	**Short Name**	InfSys
Responsible Lecturers	Prof. Dr.-Ing. Menno Heeren		
Department, Facility	Electrical Engineering and Computer Science		
Course of Studies	Information Technology, Bachelor		
Compulsory/elective	Compulsory	**ECTS Credit Points**	5
Semester of Studies	7	**Semester Hours per Week**	4
Length (semesters)	1	**Workload (hours)**	150
Frequency	WiSe	**Presence Hours**	60
Teaching Language	English	**Self-Study Hours**	90

The following section is filled only if there is **exactly one** module-concluding exam.

Exam Type	Written Exam	**Exam Language**	English
Exam Length (minutes)		**Exam Grading System**	One-third Grades
Learning Outcomes	After studying this course, the students will be able to assess the broad application area of XML technologies and to choose and apply suitable technologies for a given problem. By working on the exercises accompanying the lecture, the students experience a number of software tools, class libraries, and frameworks, mainly from the open source domain. By becoming acquainted with complex technologies, the students learn how to use these technologies to solve a given problem in a purposeful way. This ability is a very important prerequisite for taking up the challenges of a highly dynamic IT market. At the same time, the exercises promote the students' logical/analytical way of thinking. The course focuses on the XML standards defined by the World Wide Web Consortium (W3C), ensuring the long-term relevance of the course topics.		
Participation Prerequisites			

The previous section is filled only if there is **exactly one** module-concluding exam.

Consideration of Gender and Diversity Issues	✔ Use of gender-neutral language (THL standard) ✘ Target group specific adjustment of didactic methods ✔ Making subject diversity visible (female researchers, cultures etc.)
Applicability	
Remarks	

TECHNISCHE HOCHSCHULE LÜBECK

Module Course: Information Systems (Lecture)

(of Module: Information Systems)

Course Type	Lecture	**Form of Learning**	Presence
Mandatory Attendance	no	**ECTS Credit Points**	3
Participation Limit		**Semester Hours per Week**	3
Group Size		**Workload (hours)**	90
Teaching Language	English	**Presence Hours**	45
Study Achievements ("Studienleistung", SL)		**Self-Study Hours**	45
SL Length (minutes)		**SL Grading System**	

The following section is filled only if there is a course-specific exam.

Exam Type		**Exam Language**	
Exam Length (minutes)		**Exam Grading System**	
Learning Outcomes			
Participation Prerequisites			

The previous section is filled only if there is a course-specific exam.

Contents

Course topics

1. Introduction to Information Systems
   1. What is an information system?
   2. Information systems and XML
2. XML Basics
   1. XML elements, attributes, etc.
   2. Well-formed XML
3. DTDs – Structuring XML documents
   1. ELEMENT, ATTLIST, and ENTITY declarations
   2. Valid XML
4. XPath – Navigating through XML documents
   1. Location path expressions
   2. XPath predicates
   3. XPath function library
5. SAX – Parsing XML documents based on events
   1. The callback principle of SAX
   2. SAX interfaces
6. DOM – Parsing XML documents based on tree nodes
   1. DOM trees
   2. DOM interfaces
7. XSLT – Transforming XML documents
   1. The XSLT processing model
   2. Template rules
   3. XSLT element library
8. XML Schema – Structuring XML documents the modern way

	1. Simple and complex types 2. Element and attribute declarations 3. Identity and integrity constraints
Literature	In addition to the lecture notes, the following textbooks are recommended (but not necessary): Tidwell, D. XSLT, O'Reilly, 2008 Skonnard, A., Gudgin, M.: Essential XML Quick Reference: A Programmer's Reference to XML, XPath, XSLT, XML Schema, SOAP, and More, Addison Wesley, 2004
Remarks	

Module Course: Information Systems (Exercises)

(of Module: Information Systems)

Course Type	Exercise	**Form of Learning**	Presence
Mandatory Attendance	no	**ECTS Credit Points**	2
Participation Limit		**Semester Hours per Week**	1
Group Size	12	**Workload (hours)**	60
Teaching Language	English	**Presence Hours**	15
Study Achievements ("Studienleistung", SL)		**Self-Study Hours**	45
SL Length (minutes)		**SL Grading System**	

The following section is filled only if there is a course-specific exam.

Exam Type		**Exam Language**	
Exam Length (minutes)		**Exam Grading System**	
Learning Outcomes			
Participation Prerequisites			

The previous section is filled only if there is a course-specific exam.

Contents	Exercises and practical tasks to the following topics • XML Basics • DTDs XML Schema • XPATH • SAX / DOM • XSLT
Literature	See literature for the lecture
Remarks	