CURRICULUM B.Sc. CYBER SECURITY

myStudies, 180 ECTS

	Model 1: Programme Start October			Model 2: Programme Start January				Model 3: Programme Start April				Model 4: Programme Start July			
Month	**Courses**			**Courses**				**Courses**				**Courses**			
Oct	Operating Systems, Computer Networks, and Distributed Systems	Mathematics: Analysis	Requirements Engineering												
Nov															
Dec															
Jan	Introduction to Academic Work	Introduction to Programming with Python	Statistics - Probability and Descriptive Statistics	Operating Systems**	Introduction to Academic Work	Introduction to Programming with Python	Statistics - Probability and Descriptive Statistics								
Feb															
Mar															
Apr	Intercultural and Ethical Decision-Making	Mathematics: Linear Algebra	System Pentesting Basics	Intercultural and Ethical Decision-Making	Mathematics: Linear Algebra		System Pentesting Basics	Operating Systems**	Intercultural and Ethical Decision-Making	Mathematics: Linear Algebra	System Pentesting Basics				
May															
Jun	Semester Break														
Jul	Introduction to Data Protection & Cyber Security	Collaborative Work	Introduction to the Internet of Things	Introduction to Data Protection & Cyber Security	Collaborative Work		Introduction to the Internet of Things	Introduction to Data Protection & Cyber Security	Collaborative Work		Introduction to the Internet of Things	Operating Systems**	Introduction to Data Protection & Cyber Security	Collaborative Work	Introduction to the Internet of Things
Aug															
Sep	Semester Break														
Oct	Introduction to Network Forensics	Object-oriented Programming with Java	Cloud Computing	Mathematics: Analysis		Requirements Engineering		Mathematics: Analysis		Requirements Engineering		Mathematics: Analysis		Requirements Engineering	
Nov															
Dec															
Jan	Algorithms, Data Structures, and Programming Languages	IT Law	Host and Software Forensics	Algorithms, Data Structures, and Programming Languages	IT Law		Host and Software Forensics	Introduction to Academic Work	Introduction to Programming with Python		Statistics - Probability and Descriptive Statistics	Introduction to Academic Work	Introduction to Programming with Python		Statistics - Probability and Descriptive Statistics
Feb															
Mar															
Apr	Theoretical Comp. Sciences & Mathematical Logic	IT Project Management	IT Service Management	Theoretical Comp. Sciences & Mathematical Logic	IT Project Management		IT Service Management	Theoretical Comp. Sciences & Mathematical Logic	IT Project Management		IT Service Management	Intercultural and Ethical Decision-Making	Mathematics: Linear Algebra		System Pentesting Basics
May															
Jun	Semester Break														
Jul	DevSecOps and Common Software Weaknesses	Cryptography	Information Security Standards	DevSecOps and Common Software Weaknesses	Cryptography		Information Security Standards	DevSecOps and Common Software Weaknesses	Cryptography		Information Security Standards	DevSecOps and Common Software Weaknesses	Cryptography		Information Security Standards
Aug															
Sep	Semester Break														
Oct	Artificial Intelligence	Advanced Data Analysis	Elective (online)	Elective (online)	Introduction to Network Forensics	Object-oriented Programming with Java	Cloud Computing	Introduction to Network Forensics	Object-oriented Programming with Java	Cloud Computing		Introduction to Network Forensics	Object-oriented Programming with Java	Cloud Computing	
Nov															
Dec															
Jan	Project: Data Analysis	Elective (online)	Elective (online)		Project: Data Analysis	Elective (online)	Elective (online)	Algorithms, Data Structures, and Programming Languages	IT Law	Host and Software Forensics		Algorithms, Data Structures, and Programming Languages	IT Law	Host and Software Forensics	
Feb															
Mar															
Apr	Seminar: Current Topics in Computer Science	Elective (online)	Elective (online)		Seminar: Current Topics in Computer Science	Elective (online)	Elective (online)	Seminar: Current Topics in Computer Science	Elective (online)	Elective (online)		Theoretical Comp. Sciences & Mathematical Logic	IT Project Management	IT Service Management	
May															
Jun	Semester Break														
Jul	Bachelor Thesis				Bachelor Thesis				Bachelor Thesis				Bachelor Thesis		
Aug															
Sep	Semester Break														
Oct					Artificial Intelligence	Advanced Data Analysis	Elective (online)	Elective (online)	Artificial Intelligence	Advanced Data Analysis	Elective (online)	Elective (online)	Artificial Intelligence	Advanced Data Analysis	Elective (online)	Elective (online)
Nov																
Dec																
Jan									Project: Data Analysis	Elective (online)		Elective (online)	Project: Data Analysis	Elective (online)		Elective (online)
Feb																
Mar																
Apr													Seminar: Current Topics in Computer Science	Elective (online)		Elective (online)
May																

INTERNATIONAL UNIVERSITY OF APPLIED SCIENCES

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Here you see the order in which you study your courses in presence depending on your personal study start in October, January, April or July. Each semester consists of two blocks. In each block, you attend classes on campus for usually three courses to deepen the content in direct exchange with your fellow students and lecturers. You have semester breaks in June and September. Attending the courses on campus is mandatory and will be verified due to Visa regulations (not valid for DACH students).

Each block concludes with a two-week exam preparation phase. You can defer those exams to a later date that you do not want to take during this period. This way, your exam phases are always spread evenly over the year. Exceptions to this are courses that count as admission requirements for other courses.

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Attention: Attendance times may vary slightly depending on public holidays and the federal state holidays the campus is located in.

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If you are studying Model 2, 3 or 4 you will have to start your Bachelor Thesis before completing your final courses.

Elective A*

IT Security Consulting
- Technical and Operational IT Security Concepts
- Project: Configuration and Application of SIEM Systems

Social Engineering
- Social Engineering and Insider Threats
- Project: Social Engineering

Host Forensics
- Static and Dynamic Malware Analysis
- Seminar: Sandbox Interpretation

DevSecOps
- Techniques and methods for agile software development
- Project: Agile DevSecOps Software Engineering

Security in Complex Networks
- IT Architecture Management
- Project: IT Security Architecture

Network Forensics
- Protocols, Log- and Dataflow-Analysis in Depth
- Seminar: Threat Hunting, Analysis and Incident Response

Elective B*

Business Intelligence
- Business Intelligence I
- Business Intelligence II

Future Threats
- Threat Modeling
- Project: Threat Modeling

Cloud Security
- Security Controls in the Cloud
- Project: Security by Design in the Cloud

Pentesting
- Principles of Ethical Hacking
- Project: Pentesting

Industrial Systems Technology
- Software Engineering Principles
- Internet of Things Security

Cyber Threat Intelligence
- Attack Models and Threat Feeds
- Project: Defense against APTs

Mobile Threats
- Wireless and Telecom Security
- Software Architectures of Mobile Devices

Elective C*

IT Security Consulting
- Technical and Operational IT Security Concepts
- Project: Configuration and Application of SIEM Systems

Social Engineering
- Social Engineering and Insider Threats
- Project: Social Engineering

Host Forensics
- Static and Dynamic Malware Analysis
- Seminar: Sandbox Interpretation

DevSecOps
- Techniques and methods for agile software development
- Project: Agile DevSecOps Software Engineering

Security in Complex Networks
- IT Architecture Management
- Project: IT Security Architecture

Network Forensics
- Protocols, Log- and Dataflow-Analysis in Depth
- Seminar: Threat Hunting, Analysis and Incident Response

Business Intelligence
- Business Intelligence I
- Business Intelligence II

Future Threats
- Threat Modeling
- Project: Threat Modeling

Cloud Security
- Security Controls in the Cloud
- Project: Security by Design in the Cloud

Pentesting
- Principles of Ethical Hacking
- Project: Pentesting

Industrial Systems Technology
- Software Engineering Principles
- Internet of Things Security

Cyber Threat Intelligence
- Attack Models and Threat Feeds
- Project: Defense against APTs

Mobile Threats
- Wireless and Telecom Security
- Software Architectures of Mobile Devices

Supply Chain Management
- Supply Chain Management I
- Supply Chain Management II

Smart Factory
- Smart Factory I
- Smart Factory II

Production Engineering, Automation and Robotics
- Production Engineering
- Automation and Robotics

Mobile Software Engineering
- Mobile Software Engineering I
- Mobile Software Engineering II

Studium Generale

Internship

Course Information

Module	Course Code	Course	ECTS	Type of Exam
Operating Systems, Computer Networks, and Distributed Systems**	DLBIBRVS01_E	Operating Systems, Computer Networks, and Distributed Systems	5	Exam
Mathematics: Analysis	DLBDSMFC01	Mathematics: Analysis	5	Exam
Requirements Engineering	DLBCSRE01	Requirements Engineering	5	Exam
Introduction to Academic Work	DLBCSIAW01	Introduction to Academic Work	5	Basic Workbook
Introduction to Programming with Python	DLBDSIPWP01	Introduction to Programming with Python	5	Exam
Statistics - Probability and Descriptive Statistics	DLBDSSPDS01	Statistics - Probability and Descriptive Statistics	5	Exam
Intercultural and Ethical Decision-Making	DLBCSIDM01	Intercultural and Ethical Decision-Making	5	Case Study
Mathematics: Linear Algebra	DLBDSMFLA01	Mathematics: Linear Algebra	5	Exam
System Pentesting Basics	DLBCSESPB01_E	System Pentesting Basics	5	Exam
Introduction to Data Protection and Cyber Security	DLBCSIDPITS01	Introduction to Data Protection and Cyber Security	5	Exam
Collaborative Work	DLBCSCW01	Collaborative Work	5	Oral Assignment
Introduction to the Internet of Things	DLBINGEIT01_E	Introduction to the Internet of Things	5	Exam
Introduction to Network Forensics	DLBCSEINF01_E	Introduction to Network Forensics	5	Exam
Object-oriented Programming with Java	DLBCSOOPJ01	Object-oriented Programming with Java	5	Exam
Cloud Computing	DLBDSCC01	Cloud Computing	5	Exam
Algorithms, Data Structures, and Programming Languages	DLBCSL01	Algorithms, Data Structures, and Programming Languages	5	Exam
IT Law	DLBCSIITL01	IT Law	5	Case Study
Host and Software Forensics	DLBCSEHSF01_E	Host and Software Forensics	5	Exam
Theoretical Computer Sciences and Mathematical Logic	DLBCSTCSML01	Theoretical Computer Sciences and Mathematical Logic	5	Exam
IT Project Management	DLBCSEITPAM01	IT Project Management	5	Exam
IT Service Management	DLBCSITSM01-01	IT Service Management	5	Exam
DevSecOps and Common Software Weaknesses	DLBCSEDCSW01_E	DevSecOps and Common Software Weaknesses	5	Written Assignment
Cryptography	DLBCSCT01	Cryptography	5	Exam
Information Security Standards	DLBCSEISS01_E	Information Security Standards	5	Case Study
Artificial Intelligence	DLBDSEAIS01	Artificial Intelligence	5	Exam
Advanced Data Analysis	DLBDSEDA01	Advanced Data Analysis	5	Exam
Project: Data Analysis	DLBDSEDA02	Project: Data Analysis	5	Portfolio
Seminar: Current Topics in Computer Science	DLBCSSCTCS01	Seminar: Current Topics in Computer Science	5	Research Essay
ELECTIVE A*		e.g. Security in Complex Networks	10	
ELECTIVE B*		e.g. Cloud Security	10	
ELECTIVE C*		e.g. Smart Factory	10	
Bachelor Thesis		Bachelor Thesis	9	Bachelor Thesis
		Thesis Defense	1	Presentation: Colloquium

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* Electives: Choose one module with two courses from the Elective A, one module from the Elective B and one module from the Elective C. Every elective module can only be chosen once.

Note: The Electives are only offered in distance learning (online).