CURRICULUM B.Sc. CYBER SECURITY

myStudies, 180 ECTS Credits

INTERNATIONAL UNIVERSITY OF APPLIED SCIENCES

Month	Model 1: Programme Start October			Model 2: Programme Start January			Model 3: Programme Start April				Model 4: Programme Start July			
	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, Computer Networks, and Distributed 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, Computer Networks, and Distributed Systems	Intercultural and Ethical Decision-Making	Mathematics: Linear Algebra	System Pentesting Basics			
May														
Jun	Lecture-Free Period													
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, Computer Networks, and Distributed Systems	Introduction to Data Protection & Cyber Security	Collaborative Work	Introduction to the Internet of Things
Aug														
Sep	Lecture-Free Period													
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	Lecture-Free Period													
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	Lecture-Free Period													
Oct	Artificial Intelligence	Advanced Data Analysis	Elective A Course a	Elective A Course b	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 B Course c		Elective B Course d	Project: Data Analysis	Elective B Course c	Elective B Course d	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 C Course e		Elective C Course f	Seminar: Current Topics in Computer Science	Elective C Course e	Elective C Course f	Seminar: Current Topics in Computer Science	Elective C Course e		Elective C Course f	Theoretical Comp. Sciences & Mathematical Logic	IT Project Management	IT Service Management
May														
Jun	Lecture-Free Period													
Jul	Bachelor Thesis				Bachelor Thesis			Bachelor Thesis				Bachelor Thesis		
Aug														
Sep	Lecture-Free Period													
Oct					Artificial Intelligence	Advanced Data Analysis	Elective A Course a	Elective A Course b	Artificial Intelligence	Advanced Data Analysis	Elective A Course a	Elective A Course b	Artificial Intelligence	Advanced Data Analysis	Elective A Course a	Elective A Course b
Nov																
Dec																
Jan									Project: Data Analysis	Elective B Course c		Elective B Course d	Project: Data Analysis	Elective B Course c		Elective B Course d
Feb																
Mar																
Apr													Seminar: Current Topics in Computer Science	Elective C Course e		Elective C Course f
May																

Elective A~

IT Security Consulting
- a) Technical and Operational IT Security Concepts
- b) Project: Configuration and Application of SIEM Systems*

Social Engineering
- a) Social Engineering and Insider Threats
- b) Project: Social Engineering*

Host Forensics
- a) Static and Dynamic Malware Analysis*
- b) Seminar: Sandbox Interpretation*

DevSecOps
- a) Techniques and methods for agile software development
- b) Project: Agile DevSecOps Software Engineering*

Security in Complex Networks
- a) IT Architecture Management
- b) Project: IT Security Architecture*

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

Elective B~

Business Intelligence
- c) Business Intelligence I
- d) Business Intelligence II

Future Threats
- c) Threat Modeling*
- d) Project: Threat Modeling*

Cloud Security
- c) Security Controls in the Cloud*
- d) Project: Security by Design in the Cloud*

Pentesting
- c) Principles of Ethical Hacking*
- d) Project: Pentesting*

Industrial Systems Technology
- c) Software Engineering Principles
- d) Internet of Things Security*

Cyber Threat Intelligence
- c) Attack Models and Threat Feeds
- d) Project: Defense against APTs*

Mobile Threats
- c) Wireless and Telecom Security*
- d) Software Architectures of Mobile Devices

Elective C~

IT Security Consulting
- e) Technical and Operational IT Security Concepts
- f) Project: Configuration and Application of SIEM Systems*

Social Engineering
- e) Social Engineering and Insider Threats
- f) Project: Social Engineering*

Host Forensics
- e) Static and Dynamic Malware Analysis*
- f) Seminar: Sandbox Interpretation*

DevSecOps
- e) Techniques and methods for agile software developme
- f) Project: Agile DevSecOps Software Engineering

Security in Complex Networks
- e) IT Architecture Management
- f) Project: IT Security Architecture*

Network Forensics
- e) Protocols, Log- and Dataflow-Analysis in Depth*
- f) Seminar: Threat Hunting, Analysis and Incident Respon

Business Intelligence
- e) Business Intelligence I
- f) Business Intelligence II

Future Threats
- e) Threat Modeling*
- f) Project: Threat Modeling*

Cloud Security
- e) Security Controls in the Cloud*
- f) Project: Security by Design in the Cloud*

Pentesting
- e) Principles of Ethical Hacking*
- f) Project: Pentesting*

Industrial Systems Technology
- e) Software Engineering Principles
- f) Internet of Things Security*

Cyber Threat Intelligence
- e) Attack Models and Threat Feeds
- f) Project: Defense against APTs*

Mobile Threats
- e) Wireless and Telecom Security*
- f) Software Architectures of Mobile Devices

Supply Chain Management
- e) Supply Chain Management I
- f) Supply Chain Management II

Smart Factory
- e) Smart Factory I
- f) Smart Factory II

Production Engineering, Automation and Robotics
- e) Production Engineering Industry 4.0
- f) Automation and Robotics*

Mobile Software Engineering
- e) Mobile Software Engineering I
- f) Mobile Software Engineering II

Microsoft ERP - Dynamics 365 Business Central - Functional Consultant
- e) Project: Dynamics 365 Business Central - Financial Company Setup
- f) Project: Dynamics 365 Business Central - Business Processes with Focus on Sales and Distribution

SAP - SAP S/4HANA Business Process Integration - Application Associate
- e) Project: SAP S/4HANA - Financial Company Setup incl. Human Capital Management
- f) Project: SAP S/4HANA - Business Processes

Career Development
- e) Personal Career Plan
- f) Personal Elevator Pitch

Studium Generale

Internship

Course Information

Module	Course Code	Course	ECTS Credits	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	DLBDSSPDS01-01	Statistics - Probability and Descriptive Statistics	5	Exam
Intercultural and Ethical Decision-Making	DLBCSIDM01	Intercultural and Ethical Decision-Making	5	Written Assessment: 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

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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 lecture-free periods in both June and September, which you can spend reviewing and preparing for exams. 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.

Note: You can already start with your thesis earlier than the designated block, once you have met the minumum amount of credit points required to enter.

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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.

* This course comes with admissions requirements. Please consult the module handbook for more information.

Note: Elective modules where the minimum number of participants is not reached will only be offered online (distance learning). However, IU ensures that there are always electives on campus.