

**CURRICULUM B.Sc. CYBER SECURITY**

myStudies, 180 ECTS Credits

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															
Nov	Mathematics: Analysis				Requirements Engineering											
Dec																
Jan	Introduction to Academic Work				Introduction to Academic Work				Introduction to Academic Work				Introduction to Academic Work			
Feb	Introduction to Programming with Python				Introduction to Programming with Python				Introduction to Programming with Python				Introduction to Programming with Python			
Mar	Statistics - Probability and Descriptive Statistics				Statistics - Probability and Descriptive Statistics				Statistics - Probability and Descriptive Statistics				Statistics - Probability and Descriptive Statistics			
Apr	Intercultural and Ethical Decision-Making				Intercultural and Ethical Decision-Making				Intercultural and Ethical Decision-Making				Intercultural and Ethical Decision-Making			
May	Mathematics: Linear Algebra				System Pentesting Basics				Mathematics: Linear Algebra				System Pentesting Basics			
Jun	Lecture-Free Period															
Jul	Introduction to Data Protection & Cyber Security				Introduction to Data Protection & Cyber Security				Introduction to Data Protection & Cyber Security				Introduction to Data Protection & Cyber Security			
Aug	Collaborative Work				Collaborative Work				Collaborative Work				Collaborative Work			
Sep	Lecture-Free Period															
Oct	Introduction to Network Forensics*				Mathematics: Analysis				Mathematics: Analysis				Mathematics: Analysis			
Nov	Object-oriented Programming with Java				Requirements Engineering				Requirements Engineering				Requirements Engineering			
Dec																
Jan	Algorithms, Data Structures, and Programming Languages				Algorithms, Data Structures, and Programming Languages				Algorithms, Data Structures, and Programming Languages				Algorithms, Data Structures, and Programming Languages			
Feb	IT Law				IT Law				IT Law				IT Law			
Mar	Host and Software Forensics*				Host and Software Forensics*				Host and Software Forensics*				Host and Software Forensics*			
Apr	Theoretical Computer Sciences and Mathematical Logic				Theoretical Computer Sciences and Mathematical Logic				Theoretical Computer Sciences and Mathematical Logic				Theoretical Computer Sciences and Mathematical Logic			
May	IT Project Management				IT Project Management				IT Project Management				IT Project Management			
Jun	Lecture-Free Period															
Jul	DevSecOps and Common Software Weaknesses*				DevSecOps and Common Software Weaknesses*				DevSecOps and Common Software Weaknesses*				DevSecOps and Common Software Weaknesses*			
Aug	Cryptography				Cryptography				Cryptography				Cryptography			
Sep	Lecture-Free Period															
Oct	Artificial Intelligence				Artificial Intelligence				Artificial Intelligence				Artificial Intelligence			
Nov	Advanced Data Analysis				Advanced Data Analysis				Advanced Data Analysis				Advanced Data Analysis			
Dec	Elective A Course a				Elective A Course b				Elective A Course a				Elective A Course b			
Jan	Introduction to Network Forensics*				Object-oriented Programming with Java				Introduction to Network Forensics*				Object-oriented Programming with Java			
Feb	Project: Data Analysis				Project: Data Analysis				Project: Data Analysis				Project: Data Analysis			
Mar	Elective B Course c				Elective B Course d				Elective B Course c				Elective B Course d			
Apr	Seminar: Current Topics in Computer Science				Seminar: Current Topics in Computer Science				Seminar: Current Topics in Computer Science				Seminar: Current Topics in Computer Science			
May	Elective C Course e				Elective C Course f				Elective C Course e				Elective C Course f			
Jun	Lecture-Free Period															
Jul	Bachelor Thesis				Bachelor Thesis				Bachelor Thesis				Bachelor Thesis			
Aug	Lecture-Free Period															
Sep	Lecture-Free Period															
Oct	Artificial Intelligence				Artificial Intelligence				Artificial Intelligence				Artificial Intelligence			
Nov	Advanced Data Analysis				Advanced Data Analysis				Advanced Data Analysis				Advanced Data Analysis			
Dec	Elective A Course a				Elective A Course b				Elective A Course a				Elective A Course b			
Jan	Project: Data Analysis				Project: Data Analysis				Project: Data Analysis				Project: Data Analysis			
Feb	Elective B Course c				Elective B Course d				Elective B Course c				Elective B Course d			
Mar	Seminar: Current Topics in Computer Science				Seminar: Current Topics in Computer Science				Seminar: Current Topics in Computer Science				Seminar: Current Topics in Computer Science			
Apr	Elective C Course e				Elective C Course f				Elective C Course e				Elective C Course f			
May	Lecture-Free Period															



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 DACV 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.

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

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 minimum amount of credit points required to enter.

Elective A-	Elective B-	Elective C-	Future Threats	Smart Factory
<b>IT Security Consulting</b> a) Technical and Operational IT Security Concepts b) Project: Configuration and Application of SIEM Systems*	<b>Business Intelligence</b> a) Business Intelligence b) Project: Business Intelligence	<b>IT Security Consulting</b> a) Technical and Operational IT Security Concepts b) Project: Configuration and Application of SIEM Systems*	a) Threat Modelling* b) Project: Threat Modelling*	a) Smart Factory I b) Smart Factory II
<b>Social Engineering</b> a) Social Engineering and Insider Threats b) Project: Social Engineering*	<b>Future Threats</b> c) Threat Modelling* d) Project: Threat Modelling*	<b>Social Engineering</b> a) Social Engineering and Insider Threats b) Project: Social Engineering*	<b>Cloud Security</b> c) Security Controls in the Cloud* d) Project: Security by Design in the Cloud*	<b>Production Engineering, Automation and Robotics</b> a) Production Engineering Industry 4.0 b) Automation and Robotics*
<b>Host Forensics</b> a) Static and Dynamic Malware Analysis* b) Seminar: Sandbox Interpretation*	<b>Cloud Security</b> c) Security Controls in the Cloud* d) Project: Security by Design in the Cloud*	<b>Host Forensics</b> a) Static and Dynamic Malware Analysis* b) Seminar: Sandbox Interpretation*	<b>Pentesting</b> c) Principles of Ethical Hacking* d) Project: Pentesting*	<b>Mobile Software Engineering</b> a) Mobile Software Engineering I b) Mobile Software Engineering II
<b>DevSecOps</b> a) Techniques and methods for agile software development b) Project: Agile DevSecOps Software Engineering*	<b>Pentesting</b> c) Principles of Ethical Hacking* d) Project: Pentesting*	<b>DevSecOps</b> a) Techniques and methods for agile software development b) Project: Agile DevSecOps Software Engineering*	<b>Industrial Systems Technology</b> c) Software Engineering Principles d) Internet of Things Security*	<b>Microsoft ERP - Dynamics 365 Business Central - Functional Consultant</b> a) Project: Dynamics 365 Business Central - Financial Company Setup b) Project: Dynamics 365 Business Central - Business Processes with Focus on Sales and Distribution
<b>Security in Complex Networks</b> a) IT Architecture Management b) Project: IT Security Architecture*	<b>Industrial Systems Technology</b> c) Software Engineering Principles d) Internet of Things Security*	<b>Security in Complex Networks</b> a) IT Architecture Management b) Project: IT Security Architecture*	<b>Cyber Threat Intelligence</b> c) Attack Models and Threat Feeds d) Seminar: Threat Hunting, Analysis and Incident Response*	<b>SAP - SAP S/4HANA Business Process Integration - Application Associate</b> a) Project: SAP S/4HANA - Financial Company Setup b) Project: SAP S/4HANA - Business Processes
<b>Network Forensics</b> a) Protocols, Log- and Dataflow-Analysis in Depth* b) Seminar: Threat Hunting, Analysis and Incident Response*	<b>Cyber Threat Intelligence</b> c) Attack Models and Threat Feeds d) Seminar: Threat Hunting, Analysis and Incident Response*	<b>Network Forensics</b> a) Protocols, Log- and Dataflow-Analysis in Depth* b) Seminar: Threat Hunting, Analysis and Incident Response*	<b>Mobile Threats</b> c) Wireless and Telecom Security* d) Software Architectures of Mobile Devices	<b>Career Development</b> a) Personal Career Plan b) Personal Elevator Pitch
<b>Internship</b>	<b>Mobile Threats</b> c) Wireless and Telecom Security* d) Software Architectures of Mobile Devices	<b>Business Intelligence</b> a) Business Intelligence b) Project: Business Intelligence	<b>Supply Chain Management</b> c) Supply Chain Management I d) Supply Chain Management II	<b>AWS Cloud Specialization</b> a) Project: AWS - Cloud Essentials b) Project: AWS - Cloud Advanced
<b>Internship</b>	<b>Internship</b>	<b>Business Intelligence</b> a) Business Intelligence b) Project: Business Intelligence	<b>Supply Chain Management</b> c) Supply Chain Management I d) Supply Chain Management II	<b>Stallion Generate Internship</b>

Course Information	Course Code	Course	ECTS Credits	Type of Exam
Operating Systems, Computer Networks, and Distributed Systems*	DLBIBVS01_E	Operating Systems, Computer Networks, and Distributed Systems*	5	Exam
Mathematics: Analysis	DLBDSMF01	Mathematics: Analysis	5	Exam
Requirements Engineering	DLBSCRE01	Requirements Engineering	5	Exam
Introduction to Academic Work	DLBSCW001	Introduction to Academic Work	5	Basic Workbook
Introduction to Programming with Python	DLBDSIPW01	Introduction to Programming with Python	5	Exam
Statistics - Probability and Descriptive Statistics	DLBDSPP01-01	Statistics - Probability and Descriptive Statistics	5	Exam
Intercultural and Ethical Decision-Making	DLBSCIDM03	Intercultural and Ethical Decision-Making	5	Written Assessment: Case Study
Mathematics: Linear Algebra	DLBDSHFA01	Mathematics: Linear Algebra	5	Exam
System Pentesting Basics	DLBSCSPB01_E	System Pentesting Basics	5	Exam
Introduction to Data Protection and Cyber Security	DLBSCDPT501	Introduction to Data Protection and Cyber Security	5	Exam
Collaborative Work	DLBSCCW01	Collaborative Work	5	Oral Assignment
Introduction to the Internet of Things	DLBINGETI01_E	Introduction to the Internet of Things	5	Exam
Introduction to Network Forensics*	DLBSCSNF01_E	Introduction to Network Forensics*	5	Exam
Object-oriented Programming with Java	DLBSCOP01	Object-oriented Programming with Java	5	Exam
Cloud Computing	DLBSCC01	Cloud Computing	5	Exam
Algorithms, Data Structures, and Programming Languages	DLBSCAL01-01	Algorithms, Data Structures, and Programming Languages	5	Exam/Advanced Workbook
IT Law	DLBSCITL01	IT Law	5	Written Assessment: Case Study
Host and Software Forensics*	DLBSCHSF01_E	Host and Software Forensics*	5	Exam
Theoretical Computer Sciences and Mathematical Logic	DLBSCSTML01	Theoretical Computer Sciences and Mathematical Logic	5	Exam
IT Project Management	DLBSCITPM01	IT Project Management	5	Exam
IT Service Management	DLBSCITSM01-02	IT Service Management	5	Exam
DevSecOps and Common Software Weaknesses*	DLBSCDSCW01_E	DevSecOps and Common Software Weaknesses*	5	Written Assessment: Written Assignment
Cryptography	DLBSCCT01-01	Cryptography	5	Written Assessment: Case Study
Information Security Standards	DLBSCISS01_E	Information Security Standards	5	Written Assessment: Case Study
Artificial Intelligence	DLBDSAI01	Artificial Intelligence	5	Exam
Advanced Data Analysis	DLBDSADA01	Advanced Data Analysis	5	Exam
Project: Data Analysis	DLBDSEDA02	Project: Data Analysis	5	Portfolio
Seminar: Current Topics in Computer Science	DLBSCSTCS01	Seminar: Current Topics in Computer Science	5	Written Assessment: Research Essay
<b>ELECTIVE A-</b>		e.g. Security in Complex Networks	10	
<b>ELECTIVE B-</b>		e.g. Cloud Security	10	
<b>ELECTIVE C-</b>		e.g. Smart Factory	10	
Bachelor Thesis		Bachelor Thesis	12	Bachelor Thesis
		Thesis Defense	1	Präsentation: Colloquium

~ 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.