

www.iu.org

MASTER (M.SC.) CYBER SECURITY

With digitalisation, cyber-attacks on software and system structures in companies are on the rise. To ensure the confidentiality, availability and integrity of their data, just about every company, organisation and government agency requires competent cyber security professionals. There is now a huge and unmet demand for security experts with a keen eye to identify and defend against cyber-attacks. With the IU International University of Applied Sciences Master in Cyber Security, you will acquire all the skills you need to protect data and ensure top security measures for systems used by companies worldwide. You'll become a specialist in securing infrastructures against attacks, risks or malware using statistical and digital forensic methods.



Degree

Master of Science (M.Sc.)



Duration

Online: 24, 36, or 48 months
On Campus: 24 months



Study start

Start (online studies): Anytime
Start (on campus): January 2023*
(then 4 times a year; Oct, Jan, Apr or Jul)



Credits

120 ECTS



Study model and accreditation*

- Online studies or On Campus
- German accredited institution, recognised by ZFU (German Central Office for Distance Learning)

iu INTERNATIONAL
UNIVERSITY OF
APPLIED SCIENCES

*Subject to approval by the Thuringian Ministry of Economy, Science and Digital Society. We expect the Ministry's approval no later than the start of the studies. So far, the approval has always been on time.

Study Content (120 ECTS)

1. PRESENCE TIMEFRAME	2. PRESENCE TIMEFRAME	MODULE TITLE	SEMESTER	CREDITS (ECTS)	TEST TYPE
Oct/Nov/Dec	Apr/May	Corporate Governance of IT, Compliance, and Law	1	5 ECTS	E
Oct/Nov/Dec	Apr/May	Advanced Mathematics		5 ECTS	E
Oct/Nov/Dec	Apr/May	Cyber Security and Data Protection		5 ECTS	OA
Jan/Feb/Mar	Jul/Aug	Advanced Research Methods		5 ECTS	WAWA
Jan/Feb/Mar	Jul/Aug	Cyber Risk Assessment and Management		5 ECTS	E
Jan/Feb/Mar	Jul/Aug	IT Systems: Software		5 ECTS	E
Apr/May	Oct/Nov/Dec	IT Systems: Hardware	2	5 ECTS	E
Apr/May	Oct/Nov/Dec	Cyber Systems and Network Forensics		5 ECTS	E
Apr/May	Oct/Nov/Dec	Theoretical Computer Science for IT Security		5 ECTS	E
Jul/Aug	Jan/Feb/Mar	Seminar: Advanced Cyber Security		5 ECTS	WARE
Jul/Aug	Jan/Feb/Mar	Seminar: Standards and Frameworks		5 ECTS	WARE
Jul/Aug	Jan/Feb/Mar	Project: Current Challenges of Cyber Security		5 ECTS	WAPR
Oct/Nov/Dec	Apr/May	Cryptology	3	5 ECTS	OA
Oct/Nov/Dec	Apr/May	Secure Networking		5 ECTS	E
Jan/Feb/Mar	Jul/Aug	Elective A		10 ECTS	
Apr/May	Oct/Nov/Dec	Elective B	4	10 ECTS	
Online		Master Thesis		30 ECTS	WAMT & PC

E = Exam, OA = Oral assignment, PC = Presentation: Colloquium, WB = Workbook, BWB = Basic Workbook, AWB = Advanced Workbook, WABT = Written assessment: Bachelor thesis, WACS = Written assessment: Case study, WAMT = Written assessment: Master thesis, WAPR = Written assessment: Project report, WARE = Written assessment: Research essay, WAWA = Written assessment: Written assignment, OPR = Oral project report, P = Portfolio, POP = Proof of Participation

CHOOSE YOUR ELECTIVES

You'll have the chance to choose electives in subjects you're interested in. These will amount to 20 ECTS of your overall degree.

Choose one elective from "Electives A" list*:

- Blockchain and Quantum Computing
- Cyber Criminality
- Secure Software Development

Choose one elective from "Electives B" list*:

- Artificial Intelligence
- Audit- and Security Testing
- Business Analyst
- Continuous and Lifecycle Security
- Data Science and Big Data Technologies
- Industrial Automation and Internet of Things
- Internship**
- IT Law for IT Security
- Organizational Transformation

Electives on Campus:

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

* Each elective module can only be chosen once.

**Only available for on campus study programmes.

ELECTIVES

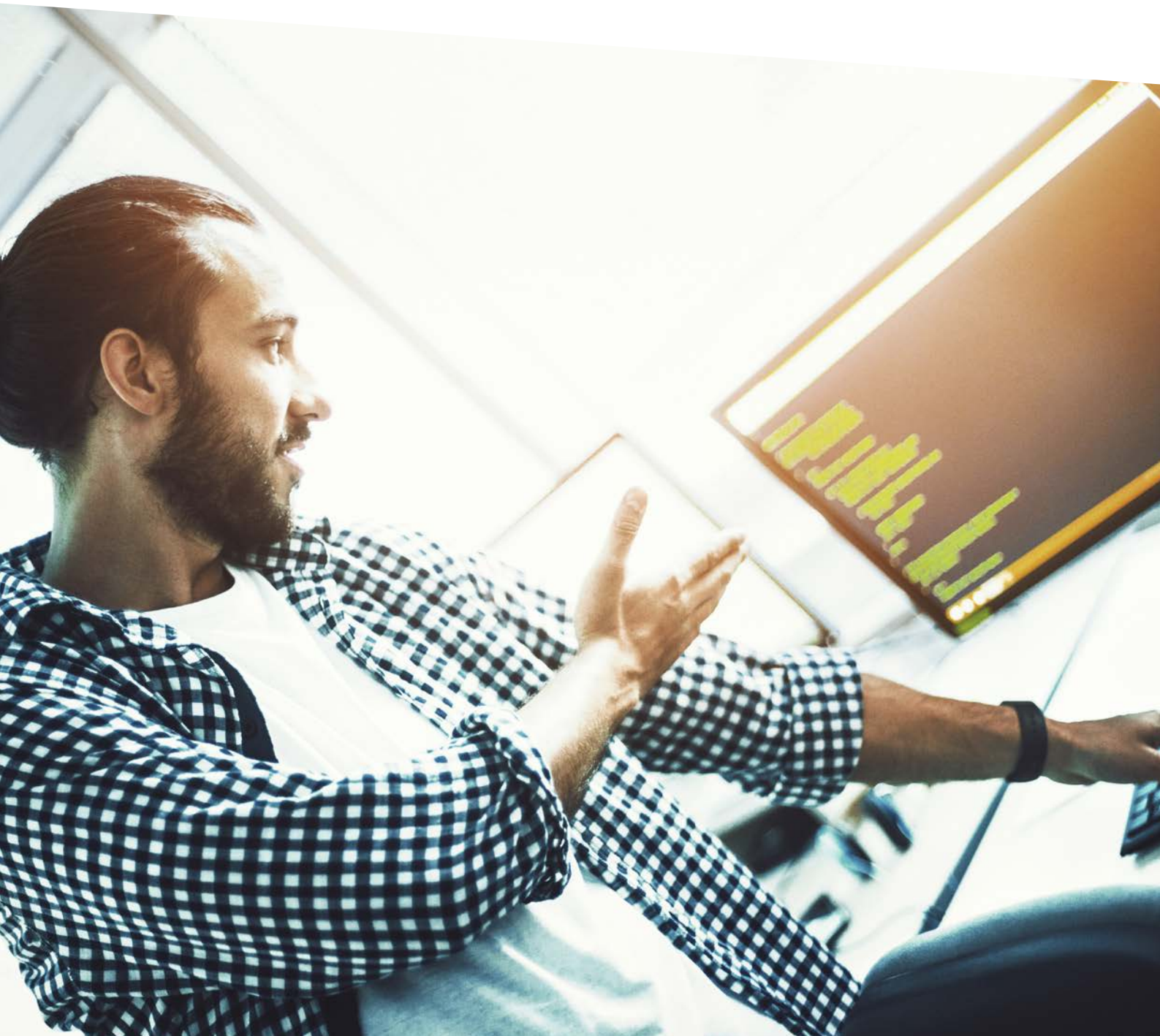
In this programme, you can choose electives in order to specialise in a field you're interested in.

BLOCKCHAIN AND QUANTUM COMPUTING

After completing this module, you will be familiar with the functions and processes of blockchain technology. As a result, you will understand important applications, especially BitCoin. You will be able to assess the advantages and challenges of blockchain as well as legal and social aspects. You will get to know basic concepts of quantum computing and describe its significance for computer technology. You will familiarise yourself with common calculation models of quantum computers and their fields of application. You will apply your theoretical knowledge in practice and start to develop programs using the Qiskit framework.

CAREER OUTLOOK

After completing your Master's degree in Cyber Security, you will be a highly sought-after expert who is optimally qualified for efficient response to cyber incidents as well as forensic methods of identification and defence. You will have the necessary hard and soft skills required to take responsibility over central security architectures as well as for confidently advising companies and teams on how to optimise cyber security. As an expert in your field, you will have excellent opportunities to lead your employer's security measures as a future manager. You could also be responsible for digital transformation of teams and companies, based on "security by design" and work with external agencies to detect and deter criminal activities.



ADMISSION

ADMISSION REQUIREMENTS FOR 120-ECTS

- Completed, undergraduate degree with 180 ECTS with a focus on **computer science, IT security, business informatics, theoretical computer science, applied computer science, computer engineering, media informatics or an information science related subjects with at least 180 ECTS and at least 30 ECTS explicitly in the field of computer science**
- Your degree must be from a state or state-recognised higher education institution/university
- You must have achieved a final grade of at least “satisfactory” or Grade C equivalent in your previous undergraduate degree

FURTHER ADMISSION OPPORTUNITIES

Is your undergraduate degree not in the required subject field for this programme's **120 ECTS points variation admission** requirements? You can still apply! You'll have to take 2 specific courses at the start of your studies, and pass them successfully in order to continue with your studies. That way, you don't have to take an entrance examination, and can prove your skills while earning ECTS points as part of your studies.

ADDITIONAL SPECIALIST KNOWLEDGE

- For admission, a minimum of 30 ECTS points in Computer Science must have been achieved additionally in undergraduate study programmes. For applicants who do not meet this requirement, modules from the university's Bachelor's degree programmes are offered as bridging courses for free

SCHOLARSHIP PROGRAMME

Start your online degree with our Scholarship Programme and receive a scholarship up to 67%! Start in our Scholarship Programme as a participant with immediate access to 50% of your courses. You can do this by taking our Entrance Examination which will be included in your course as part of the Scholarship Programme. Once you have handed in all admission documents and the courses are completed, you can go on to finish your degree.

Questions? Speak to your study advisor, they will guide you through every step of the process.

ENGLISH SKILLS

We therefore ask for proof of your English language skills*. If English is your native language or you graduated from an English-speaking school/university, you don't need to prove your English skills.

Accepted certifications:

- English Courses (complimentary when signing up with IU)**
- TOEFL (min. 80 points) or
- IELTS (min. Level 6.0 out of 9 points) or
- Duolingo English test (min. 95 points) or
- Cambridge Certificate (min. B grade overall) or
- Equivalent proof

*Proof must be provided before the start of the study and must not be older than five years.

**Please note that English Courses aren't accepted as a language certificate for on campus study programmes.

8 STEPS TO COMPLETE YOUR STUDIES

1

Register and apply online

2

Choose your course

3

Download your study scripts

4

Work independently with study scripts

5

Take part in Q&A sessions

6

Prepare for exams and take them either:
- directly online, or
- at an IU examination centre (remember to register in time).

7

Master thesis and colloquium

8

Complete your studies with certificate