HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

The Joint Cybersecurity Master's Programme and Cybersecurity courses offered

Information meeting for students
Spring 2026

https://uni.hi.is/helmut/cybersecurity/

ECCC
EUROPEAN CYBERSECURITY COMPETENCE CENTRE

Co-funded by the European Union

Why is cybersecurity important? or: why to study it!

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- Modern society relies heavily on many online services (e-commerce and banking, health sector, transportation, communication, utilities, i.e. critical infrastructure).

- Ever increasing amounts of data is collected and processed by various actors (all online transactions, AI and ML, etc.).
  We need to protect private users and companies against data thefts and losses.
  Sensitive data should be kept safe (and yet usable for legitimate purposes).

- Securely designed systems are also a business enabler.
  Relevant skills are needed in designing, implementing and validating them!

Teachers involved

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- Esa Hyytiä, UoI, `esa` (on leave 2025/26)
- Fatima Zahra Errounda, RU, `fatimae`

  Use this username for emailing.
  Email addresses at RU end with @ru.is
- Hans Reiser, RU, `hansr`
- Helmut Neukirchen, UoI, `helmut`

  Use this username for emailing.
  Email addresses at UoI end with @hi.is
- Jacky Mallett, RU, `jacky` (sabbatical)
- Tom Welsh, UoI, `tomwelsh`
- Stephen Fedtke, UoI, `fedtke`

  Guest teacher at UoI in spring 2026

Joint master's programme in cybersecurity

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- Joint programme at University of Iceland and Reykjavik University.
  - Specialisation/emphasis of the existing M.Sc. programmes in Computer Science.
    (At UoI: Also CySec specialisation for M.Sc. in Software Engineering.)
    - You can switch into the specialisation/emphasis at any time.
- Taught in English to attract as many students as possible.

How does it work?

- Students enroll in the M.Sc. programme at the university of their choice.
  - Take “normal” M.Sc. Computer Science courses + mandatory courses specific to Cybersecurity.
  - Can take **cybersecurity-related course** from the other university as well.
    - This applies only to students who are enrolled in the cybersecurity specialisation/emphasis! (But: as long as student numbers are low, we try to get other students in as well on a best-effort basis).
    - Need to enrol as guest student at the other university: You need to refer to cysec collaboration to get fees waived.
    - Currently: Credits need to be manually registered at home university.
      (UoI: **contact Helmut to get your credit transferred from RU**. Currently, course name does not show up in UoI record, but as “credits from another university”: get a document from RU if you want to be able to show the course name.)
  - Of course, students can always take cybersecurity courses from their own university.
  - Import additional distance learning courses from abroad, e.g.:
    - Norwegian University of Science and Technology (NTNU Trondheim/Gjøvik, Norway).
    - (Aalto University, Helsinki, Finland – not 2025/2026 while Esa is on leave).

Teaching periods: Spring semester 2026

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- RU:
  - First 12 weeks of parallel courses:
    - Teaching period: 12. January to 10. April,
    - Exam period: 13.-24. April.
  - Followed by 3 weeks of a single, all-day course:
    - Teaching period: 27. April to 15. May,
    - Exam/assessment: 18.-19. May.

  Source: https://www.ru.is/en/namid/um-namid/academic-calendar

UoI students can take such a 3 week course in parallel to their exams, but have to tell RU teacher if they cannot attend on specific days due to exams at UoI.

- UoI:
  - Teaching period: 12. January to 24. April (23. April is first day of summer!),
  - Exam period: 27. April to 12. May.

  Source: https://www.hi.is/nam_verkfraedi_og_natturuvisindasvid/kennslualmanak_verkfraedi_og_natturuvisindasvids

Courses offered at RU (12 week + 3 week)

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

Vorönn/Spring 2026			
Business Intelligence	I-707-VGBI	ECTS 6	
Functional Programming	T-209-FUPR	ECTS 6	
Operating Systems	T-215-STY1	ECTS 6	
Programming Languages	T-501-FMAL	ECTS 6	
Software Maintenance	T-533-VIHU	ECTS 6	
Mechatronics II	T-535-MECH	ECTS 6	
Artificial Intelligence	T-622-ARTI	ECTS 6	
Advanced Game Design & Development	T-634-AGDD	ECTS 6	
Game Engine Architecture	T-637-GEDE	ECTS 6	
Research Methodology	T-701-REM4	ECTS 8	
Speech Processing	T-715-SPPR	ECTS 6	
Foundations of Data Privacy: A Legal and Technical Perspective	T-722-PRIV	ECTS 8	
Empirical Research in Software Engineering, Information Systems, and Human-Computer Interaction	T-741-ERSE	ECTS 8	
Cyber Security Management & Compliance in Practice	T-746-COPS	ECTS 8	
Independent Study 1	T-749-INDS	ECTS 6	
Big Data Management	T-764-DATA	ECTS 8	
Applied Data Science	T-786-APDS	ECTS 6	
MSc Thesis (30 ECTS)	T-810-MTPR	ECTS 24	
Creating a Complete Business Plan for a Technical Idea - Entrepreneurship and the Innovation Process	T-814-INNO	ECTS 8	
Deep Learning	T-820-DEEP	ECTS 8	
MSc Thesis Defence (30 ECTS)	T-820-MDPR	ECTS 6	
MSc Thesis - Part I	T-830-MSTR	ECTS 30	
MSc Thesis - Part II	T-835-MTRH	ECTS 24	
MSc Thesis Defence (60 ECTS)	T-840-MDRS	ECTS 6	
Entrepreneurial Finance	V-733-ENTR	ECTS 7,5	
Entrepreneurship and Starting New Ventures	X-204-STOF	ECTS 6	
Exchange Studies	X-699-EXCH	ECTS 30	

Legend

- Mandatory course on major
- Optional course on major
- Teaching language
- Prerequisites for course

https://www.ru.is/en/namid/um-namid/kennsluskra →Department of Computer Science→MSc in Computer Science

Cybersecurity MSc Programme

Courses offered at RU (12 weeks)

Spring 2026:

Cyber Security Management & Compliance in Practice 8 ECTS (12 weeks)

This course comprehensively explains organizations' cyber security management and compliance.

It integrates theoretical knowledge with practical applications, focusing on risk management, compliance frameworks, and the implementation of security measures.

Students will engage in hands-on activities to develop skills necessary for managing cyber security in real-world scenarios.

https://www.ru.is/en/namid/um-namid/kennsluskra
→Department of Computer Science→MSc in Computer Science

Courses offered at RU (12 weeks)

Spring 2026:

Foundations of Data Privacy: A Legal and Technical Perspective 8 ECTS (12 weeks)

Multi-disciplinary: Legal and Computer Science

Learning Outcomes:

- Identify regulatory frameworks (Lectures)
- Apply privacy techniques to use-cases (Lectures and assignments)
- Collaborate effectively in interdisciplinary teams (Semester long project)

Workload:

- Group assignments 30%
- Group project 30%
- Individual research project 20%
- Quizzes 20%

https://www.ru.is/en/namid/um-namid/kennsluskra
→Department of Computer Science→MSc in Computer Science

Courses offered at RU (3 weeks)

Spring 2026:

Modern Binary and Microarchitecture Exploitation Techniques and Mitigations
6 ECTS (3 weeks)

Course contents:

- Analyze binaries and source code to identify security vulnerabilities across software and microarchitectural layers
- Develop, reproduce, and document reliable exploits (e.g., UAF, ROP/JOP/COOP, microarchitectural attacks)
- Reverse engineer closed-source software to discover and understand security flaws
- Evaluate the effectiveness of modern mitigations (e.g., ASLR, PAC, Shadow Stacks) across platforms and architectures
- Propose and justify appropriate mitigations and security recommendations for real-world systems

https://www.ru.is/en/namid/um-namid/kennsluskra
→Department of Computer Science→MSc in Computer Science

Courses offered at UoI

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

Specialisation: Cyber Security (Courses in 2025-2026)

Year of study unspecified

Fall	Spring
Ⓢ TÖL605M Fundamentals of Ethical Hacking 6e	Ⓢ TÖL213M Applied Cryptography 6e
Ⓢ TÖL029M Introduction to Information Security 6e	Ⓢ HBV506M Secure Software Engineering 6e
Ⓢ TÖL431L Final project 30e	Ⓢ TÖL212F Governance of the Internet 6e
Ⓥ TÖL031M Quantum Computing and Quantum Cryptography 6e	Ⓢ TÖL431L Final project 30e
Ⓥ TÖL104M Network Measurements and Analysis 6e	Ⓢ TÖL606M Seminar in computer science 2e
Ⓥ TÖL031M Quantum Computing and Quantum Cryptography 6e	Ⓥ TÖL028M Seminar on Machine Learning 2e
Ⓥ IÐN113F Time Series Analysis 7,5e	Ⓥ REI204M High Performance Computing 6e
Ⓥ REI503M Performance analysis of computer systems 6e	Ⓥ TÖL212M Reasoned Programming 6e
Ⓥ REI504M Cloud Computing and Big Data 6e	Ⓥ HBV204M Software Quality Management 6e
Ⓥ REI505M Machine Learning 6e	Ⓥ HBV205M Software Testing 6e
Ⓥ TÖL022F Internship in Cybersecurity 6e	Ⓥ LÖG283F Privacy and Data Protection Law 6e
Ⓥ TÖL103M Programming Projects on Internet of Things 6e	Ⓥ RAF620M Introduction to machine learning and artificial intelligence 6e
Ⓥ TÖL503M Distributed Systems 6e	Ⓥ TÖL022F Internship in Cybersecurity 6e
Ⓥ TÖL506M Introduction to deep neural networks 6e	Ⓥ TÖL213M Applied Cryptography 6e
Ⓥ VON001F Thesis skills: project management, writing skills and presentation 4e	

Not listed in CS/Se course catalogue but findable in UGLA:
TÖL401M Hack the hackers: Detection and defence against cyber attacks (6 ECTS)
https://ugla.hi.is/kennsluskra/index.php?tab=nam&chapter=namskeid&id=71264820260

Courses mandatory (“S”) and elective (“V”) for M.Sc. in Computer Science with CySec specialisation shown above.

M.Sc. in Software Engineering with CyseC specialisation: has additional mandatory SE courses (SW maintenance, SW testing, SW QM);

Course catalogue Computer Science M.Sc.: https://ugla.hi.is/kennsluskra/index.php?tab=nam&chapter=namsleid&id=080705_20256&kennsluar=2025&lina=10950
Course catalogue Software Engineering M.Sc.: https://ugla.hi.is/kennsluskra/index.php?tab=nam&chapter=namsleid&id=080725_20256&kennsluar=2025&lina=10953

New spring 2026 CySec courses at UoI

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

TÖL=Computer Science topic / HBV=Software Engineering topic
M = M.Sc. students and 3rd year B.Sc. students, F = M.Sc. only

- TÖL401M Hack the hackers: Detection and defence against cyber attacks
  - 6 ECTS, elective
  - There were some issues with course catalogue entry and timetable slots…
    - Mon 8:20-9:50 (but not today), Wed 14:10-14:40, Thu 8:20-9:50
  - Guest teacher: Dr. Stephen Fedtke

  - Hands-on course: dive into the realities of modern cyber defense.

  - How security operations centers (SOCs) function,
  - how security information and event management (SIEM) systems detect threats in real time,
  - how organizations across Europe build resilient and compliant IT infrastructures.

  - Understand how cyber attacks are detected – and how professionals respond in real time.
  - Explore interdisciplinary aspects – from sensors, logs and connection with legal compliance.
  - Gain hands-on experience with SIEM tools, including leading platforms like Splunk.
  - Develop skills relevant to careers in security operations, compliance, forensics, cyber insurance, and more.

Notable spring 2026 CySec courses at UoI

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

TÖL=Computer Science topic / HBV=Software Engineering topic
M = M.Sc. students and 3rd year B.Sc. students, F = M.Sc. only

- TÖL213M Applied Cryptography
  - 6 ECTS, **mandatory** for UoI **CySec** M.Sc. students.
- HBV506M Secure Software Engineering
  - 6 ECTS, **mandatory** for UoI **CySec** M.Sc. students.
- TÖL212F Governance of the Internet
  - 6 ECTS, **mandatory** for UoI **Computer Science CySec** M.Sc. students (elective for others, such as SE).
- HBV204M Software Quality Management
  - 6 ECTS, **mandatory** for UoI all **Software Engineering** M.Sc. students (elective for others, such as CS).
- TÖL606M Seminar in Computer Science
  - 2 ECTS, **mandatory** for UoI all **Computer Science** and **Software Engineering** M.Sc. students.
- M.Sc. thesis
  - Computer Science: 1 or 2 semesters duration (30 or 60 ECTS). Needs to be about a CS CySec topic.
  - Software Engineering: 2 semesters duration (60 ECTS). Needs to be about a SE CySec topic.

Frostbyte lab
https://www.frostbyte.is

- The cybersecurity collaboration of Reykjavik University and University of Iceland has hardware at both universities: the Frostbyte lab.
  - Mainly servers to run virtual machines in a protected environment, e.g.:
    - to learn hacking vulnerable software (without someone from outside being able to attack that vulnerable software),
    - to run malicious software (without threatening the outside).
  - Frostbyte Cybersecurity Workshop: students presenting their projects. Maybe in May 2026?

Cybersecurity student club

- The students of Reykjavik University and University of Iceland run a Cybersecurity student club.
- Join us on Discord for updates:
  https://discord.gg/9ZA9b5YaSF

Summary

- Check course catalogue of the two universities:
  - See URLs on slides 7 and 9.
- For particular questions, contact your university's staff or course teachers
  - (For email addresses: see slide 3).
- If you want to take a course at the other university:
  - contact Helmut at UoI.
- Questions/Comments?

Download these slides: via QR code or
https://uni.hi.is/helmut/cybersecurity/

Acknowledgments

- The joint cybersecurity study offerings would not be possible without funding from
  - the Ministry of Culture, Innovation and Higher Education,
  - the European Union's Digital Europe Programme:
    - European Cybersecurity Competence Centre and Network (ECCC) https://cybersecurity-centre.europa.eu
      - ECCC aims to increase Europe's cybersecurity capacities and competitiveness,
      - working together with a Network of National Coordination Centres (NCCs) to build a strong cybersecurity community.
        - In Iceland, this is Eyvör, the National Cybersecurity Coordination Centre of Iceland (NCC-IS) https://eyvor.is
      - Further EU-funding from project Defend Iceland: Nationwide bug bounty platform.

This project has received co-funding from the European Union's Digital Europe Programme and the European Cybersecurity Competence Centre and Network under grant agreement no. 101127453 National Coordination Centre for Cybersecurity in Iceland and 101127307 Defend Iceland: Nationwide bug bounty platform and from the Ministry of Higher Education, Science and Innovation.