HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

The Joint Cybersecurity Master's Programme and Cybersecurity courses offered

Information meeting for students
Autumn 2025

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
- Hemanadhan Myneni, UoI, myneni
- Jacky Mallett, RU, `jacky`
- Tom Welsh, UoI, `tomwelsh`

+ external teachers, e.g. Rey Leclerc Sveinsson & Svavar Ingi Hermannsson at UoI
+ visiting scholars (from US via Fulbright, from NTNU Norway)

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?

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- 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: Autumn semester 2025

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- RU:
  - First 12 weeks of parallel courses:
    - Teaching period: 18. August to 7. November,
    - Exam period: 10.-21. November.
  - Followed by 3 weeks of a single, all-day course:
    - Teaching period: 24. November to 12. December,
    - Exam/assessment: 15.-16. December.

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

UoI students can take these 3 week courses, but have to tell RU teacher if they cannot attend on specific days due to exams at UoI.

- UoI:
  - Teaching period: 18. August to 21. November,
  - Exam period: 24. November to 8. December.

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

Courses offered at RU (12 week + 3 week)

Autumn 2025:

Computer Security: Defence against the Dark Arts 8 ECTS (12 weeks)
Starts Tuesday, 19.8.2025, 13:30-15:10 at RU room M122, lab on Fridays

Computer Security: Web security 6 ECTS (3 weeks)

Spring 2026:

Cyber Security Management & Compliance in Practice (12 weeks)

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

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	Ⓥ HBV204M Software Quality Management 6e
Ⓥ REI503M Performance analysis of computer systems 6e	Ⓥ HBV205M Software Testing 6e
Ⓥ REI504M Cloud Computing and Big Data 6e	Ⓥ LÖG283F Privacy and Data Protection Law 6e
Ⓥ REI505M Machine Learning 6e	Ⓥ RAF620M Introduction to machine learning and artificial intelligence 6e
Ⓥ TÖL022F Internship in Cybersecurity 6e	Ⓥ TÖL022F Internship in Cybersecurity 6e
Ⓥ TÖL103M Programming Projects on Internet of Things 6e	Ⓥ TÖL213M Applied Cryptography 6e
Ⓥ TÖL503M Distributed Systems 6e	
Ⓥ TÖL506M Introduction to deep neural networks 6e	
Ⓥ VON001F Thesis skills: project management, writing skills and presentation 4e	

Spring 2026 courses still subject to change, e.g. a course on Security Operations Centers (SOCs) and Security Information and Event Management (SIEM) systems planned by external teacher.

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: (1) has additional mandatory SE courses (SW maintenance, SW testing, SW QM); (2) by mistake TÖL605M Fundamentals of Ethical Hacking was not listed as mandatory for M.Sc. in cysec SE until 15. August 2025.

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

Notable autumn 2025 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

- TÖL605M Fundamentals of Ethical hacking
  - 6 ECTS, **mandatory** for UoI CySec students.
    - Was by mistake not listed as mandatory for CySec SE M.Sc. (corrected: 15. August 2025).
  - This course (or an RU course covering penetration testing) is a **prerequisite** for the spring course HBV506M Secure Software Engineering (that is mandatory for UoI CySec specialisation).
- TÖL029M Introduction to Information Security
  - 6 ECTS, mandatory for UoI CySec students.
- TÖL031M Quantum Computing and Quantum Cryptography
  - 6 ECTS, elective.
- Not taught in 2025 (but initially planned and initially mandatory): TÖL104M Network Measurements and Analysis
- 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.

Cybersecurity student club

- The students of Reykjavik University and University of Iceland run a Cybersecurity student club.
  - Meetings, Activities, Zero Day Club
  - First Meeting @ RU:

    28th of August at 16:30 in M104

    For a room map at RU see here:
    https://hr.kreatives.is/wp-content/uploads/2021/11/Kort-Map-2021.pdf

Join us on Discord for updates:

URL has been removed in public version of the slides: ask Helmut or Jacky for the URL

Summary

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- 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:
  - RU student taking course at UoI: contact Helmut at UoI.
  - UoI student taking course at RU: contact Jacky at RU.
- Questions/Comments?

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

Acknowledgments

HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY

UNIVERSITY OF ICELAND

- The joint cybersecurity study offerings would not be possible without funding by
  - 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
      - The 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

Government of Iceland
Ministry of Culture, Innovation and Higher Education

This project has received co-funding from the European Union's Digital Europe Programme 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.

ECCC
EUROPEAN CYBERSECURITY COMPETENCE CENTRE

Co-funded by the European Union