



HÁSKÓLINN Í REYKJAVÍK
REYKJAVIK UNIVERSITY



UNIVERSITY
OF ICELAND

The New Joint Cybersecurity Master's Programme



EUROPEAN DIGITAL
INNOVATION HUB
EDIH ICELAND

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on behalf of the EDIH-IS, Reykjavik University,
and University of Iceland consortium

ITU Global Cybersecurity Index 2020



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International Telecommunication Union (ITU):

- Rank 1, Score 100.00: USA
- Rank 3, Score 99.48: Estonia *Iceland*

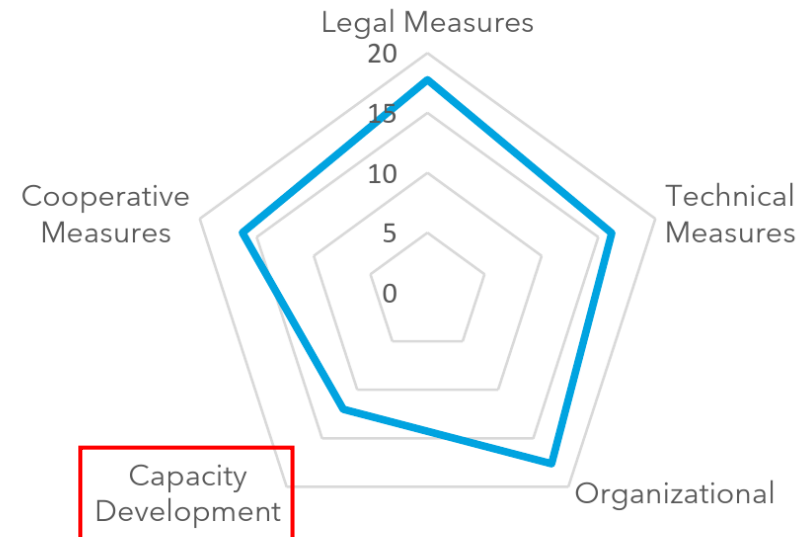
- Rank 17, Score 96.89: Norway
- Rank 22, Score 95.78: Finland
- Rank 26, Score 94.55: Sweden
- Rank 32, Score 92.60: Denmark

- Rank 58, Score 79.81: Iceland



Capacity develop

Measuring awareness campaigns, training, education, and incentives for cybersecurity capacity development



Development Level:
Developed Country

Area(s) of Relative Strength
Legal, Organizational Measures

Area(s) of Potential Growth
Capacity Development Measures

Overall Score	Legal Measures	Technical Measures	Organizational Measures	Capacity Development	Cooperative Measures
79.81	17.78	16.17	17.62	11.99	16.25

Source: ITU Global Cybersecurity Index v4, 2020



Aðgerðaáætlun í netöryggi

Aðgerðaáætlun stjórnvalda í netöryggi 2022-2027 var kynnt fyrir ríkisstjórn 28. október 2022. Aðgerðaáætlunin samanstendur af 64 fjölbreyttum aðgerðum. Út frá inntaki aðgerða eru þær flokkaðar í sex undirmarkmið sem tengjast meginmarkmiðum Netöryggisstefnu Íslands 2022-2037. Aðgerðirnar eru á ábyrgð átta ráðuneyta.

Markmið	Fjöldi og staða
<input type="checkbox"/> 1 Afburða hæfni og nýting netöryggistækni	
<input checked="" type="checkbox"/> 1.1 Traust netöryggismenning og -vitund	8
<input type="checkbox"/> 1.2 Öflug menntun, rannsóknir og þróun	14
<input checked="" type="checkbox"/> Að nám um netöryggi verði tilgreint í aðalnámsskrám leik-, grunn- og framhaldsskóla (MRN)	0
<input checked="" type="checkbox"/> Aðild að öndvegissetri Atlantshafsbandalagsins um netvarnir (NATO CCD COE) (UTN)	1
<input checked="" type="checkbox"/> Auka fræðslu innan réttarvörslukerfisins um netglæpi (DMR)	1
<input type="checkbox"/> Auka námsframboð í netöryggifræðum á háskólastigi (HVIN) Framkvæmdaraðili: EDIH-IS	1

Improve cybersecurity higher education (Ministry of Higher Education, Science and Innovation through EDIH-IS).



- Joint programme at University of Iceland and Reykjavik University.
 - New specialisation/emphasis of the existing M.Sc. programmes in Computer Science.
 - Might in future become a study programme on its own.
 - Prerequisite: B.Sc. in Computer Science or related fields (e.g. math, science, engineering).
- Start: Autumn 2023.
 - Registration deadline University of Iceland was 15th of April.
 - Registration deadline Reykjavik University: 30th of April.



- Students enroll in the Computer Science M.Sc. programme at the university of their choice.
 - Take “normal” M.Sc. Computer Science courses + mandatory courses specific to Cybersecurity.
 - Can take course from the other university as well (up to 50 ECTS units out of 120 ECTS units).
 - Contracts to enable this currently in the quantum spacetime between ministry and rectors.
 - Import additional distance learning courses from abroad.
 - E.g., Norwegian University of Science and Technology (NTNU Trondheim/Gjøvik).
- Taught in English to attract as many students as possible.
- Includes Artificial Intelligence.
 - Lack of workforce requires AI, attacks get more and more AI-based.

Curriculum (excerpt)



- 1st semester:
 - Introduction to Information Security (Management) (Reykjavik University, University of Iceland)
 - Network Measurements and Analysis (University of Iceland),
 - Machine Learning in Cybersecurity (Reykjavik University),
 - Lectures from practitioners and from abroad.
 - E.g. Socio-technical Enabled Crime (NTNU).
 - 2nd semester:
 - Cyber Defence (Reykjavik University),
 - Privacy and Data Protection Law (University of Iceland),
 - Introduction to Digital Forensics (Reykjavik University)
 - Lectures from practitioners and from abroad.
 - E.g. Reverse Engineering and Malware Analysis (NTNU).
 - 3rd semester:
 - Quantum Cryptography (University of Iceland)
 - Cyber Range Lab (Reykjavik University together with University of Iceland),
 - Lectures from practitioners and from abroad.
 - E.g. Critical Infrastructure Security (NTNU), Internships.
 - 4th semester: **M.Sc. thesis**
- + non-cybersecurity computer science courses (e.g. artificial intelligence, cloud computing, distributed systems, software testing, software quality management, research methodology)



Specialisation: Cyber Security (Courses in 2023-2024)

Year of study unspecified

Fall	Spring
<ul style="list-style-type: none"> Ⓢ TÖL029M Introduction to Information Security 🇬🇧 📍 6e Ⓢ TÖL104M Network Measurements and Analysis 🇫🇮 🇩🇪 🇬🇧 📍 6e Ⓢ TÖL113F Quantum Cryptography 🇫🇮 🇬🇧 📍 6e Ⓢ TÖL431L Final project 🇩🇪 🇬🇧 📖 30e 🧩 Ⓜ IDN113F Time Series Analysis 🇫🇮 🇬🇧 🚫 🌐 📖 7,5e Ⓜ REI503M Performance analysis of computer systems 🇫🇮 🇫🇮 🇬🇧 🚫 📍 ⚠️ 6e Ⓜ REI504M Cloud Computing and Big Data 🇫🇮 🇬🇧 🚫 📍 6e Ⓜ REI505M Machine Learning 🇫🇮 🇫🇮 🇬🇧 📍 6e Ⓜ TÖL022F Internship in Cybersecurity 🇬🇧 📍 6e Ⓜ TÖL103M Programming Projects on Internet of Things 🇬🇧 📍 6e Ⓜ TÖL503M Distributed Systems 🇫🇮 🇫🇮 🇬🇧 🚫 📍 ⚠️ 6e Ⓜ TÖL506M Introduction to deep neural networks 🇫🇮 🇬🇧 📍 6e Ⓜ VON001F Thesis skills: project management, writing skills and presentation 🇬🇧 📍 🖥️ 4e 	<ul style="list-style-type: none"> Ⓢ TÖL204F Seminar for MS-Students 🇩🇪 📍 2e Ⓢ TÖL431L Final project 🇩🇪 🇬🇧 📖 30e 🧩 Ⓜ HBV204M Software Quality Management 🇫🇮 🇫🇮 🇬🇧 📍 ⚠️ 6e Ⓜ HBV205M Software Testing 🇫🇮 🇫🇮 🇬🇧 🚫 📍 ⚠️ 6e Ⓜ LÖG283F Privacy and Data Protection Law 🇩🇪 🇫🇮 🇬🇧 📍 6e Ⓜ RAF620M Introduction to machine learning and artificial intelligence 🇫🇮 🇬🇧 📍 6e Ⓜ TÖL022F Internship in Cybersecurity 🇬🇧 📍 6e Ⓜ TÖL213M Applied Cryptography 🇫🇮 🇩🇪 🇬🇧 📍 6e Ⓜ TÖL603M Security Analytics 🇫🇮 🇬🇧 📍 6e

University of Iceland course catalogue lists only the course offered at University of Iceland. Students may in addition take courses from Reykjavik University or from abroad.



- The previous slides cover what we can promise right now.
 - Both universities (as well as Auðna/EDIH-IS) are also part of the **Icelandic National Coordination Centre (NCC-IS) for Cybersecurity**:
 - Expect some cybersecurity lectures for industry under the umbrella of NCC-IS, e.g. via EDIH-IS.
- **Reykjavik University and University of Iceland got together 90 m.kr. funding.**
 - For two years from **University collaboration fund** (Samstarfssjóður háskóla) from Ministry of Higher Education, Science and Innovation.
 - Allows us to hire one additional position at each of the two universities.
 - **Will lead to further courses being added.**
 - Also, add more cybersecurity courses in the B.Sc. programmes and non-computer science fields.
 - European Network and Information Security (NIS) 2 directive adds cybersecurity requirements to almost all sectors (e.g. energy, transport, health, digital infrastructure).
 - **But:**
 - **Future funding is uncertain** after two years.
 - These two positions are the absolute minimum, in fact two more are needed.



ICELAND

University of Iceland

Assistant Professor in Cyber Security

The department of Computer Science in the School of Engineering and Natural Sciences at the University of Iceland seeks applicants to fill an assistant professor position in computer science with a specialisation in cybersecurity within the Faculty of Industrial Engineering, Mechanical Engineering...

Application Deadline 12 May 2023 - 23:59 (Atlantic/Reykjavik)

Education Level

PhD or equivalent

Skills/Qualifications

- The position requires a Ph.D. degree in computer science or a closely related field.
- Record of research according to the applicant's academic age as well as future potential in the field of cybersecurity.
- Academic teaching experience.
- Good communication and interpersonal skills.
- Proficiency in written and spoken English.

The selection process will take into consideration how well the applicant fits the needs and goals of the Department.

If you know anyone who qualifies: the job advertisements are at the EurAxess EU research career portal.

ICELAND

Reykjavik University

Two-year faculty position in cyber security at Reykjavik University

The Department of Computer Science at Reykjavik University is seeking a highly motivated and dynamic individual for a faculty position at any rank in the field of cyber security. This position is initially funded for two years, but may become permanent with funding and following a positive...

Application Deadline 31 May 2023 - 12:00 (Atlantic/Reykjavik)

Education Level

PhD or equivalent

Skills/Qualifications

The ideal candidate will have extensive practical experience, ideally in teaching and research, with a focus on areas that align with our commitment to strengthening cyber security. Areas of emphasis include:

- Industrial Control System Security
- Machine learning security and privacy
- Analysis and verification of security protocols
- Cyber Defence
- Network infrastructure security, applied cryptography, intrusion and anomaly detection
- System security (operating system, distributed systems, and web security)

You will have the opportunity to further build your network, strengthen internal collaborations, engage in interdisciplinary scientific work, and drive progress through collaboration with other dedicated professionals.