



Master of Science in Cybersecurity

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A multi-disciplinary graduate program addressing issues that ensure secure and reliable operations at all levels of interconnected computing and networking systems.



Cybersecurity is a multi-disciplinary field addressing issues that ensure secure and reliable operations at all levels of interconnected computing and networking systems. The Master of Science in Cybersecurity is designed to train graduate scholars, professionals, entrepreneurs, leaders, and researchers to have the advanced knowledge and skills required to fully understand and implement the technologies, tools, management methods and policy issues in cybersecurity.

The HBKU Master of Science program in cybersecurity aims to provide students with comprehensive and state-of-the-art advanced training in cybersecurity. The program not only covers multidisciplinary fields related to cybersecurity technology but also policy, ethics, and management related to IT security and cyber threats. The program leverages strong partnerships and collaborations both within HBKU and beyond the university. Delivery of the program will involve collaborations with the HBKU Research Institutes, notably Qatar Computing Research Institute, as well as with industrial and governmental partners, both local and international, that are currently working on critical projects aimed at providing solutions to address global challenges and lead to a safer cyber world, and that are supporting Qatar's aspirations in this area. The program offers its students the option of either completing a research thesis or working on an industrial project. The thesis requires in-depth theoretical and research components while the industrial project offers a route for students to further develop real-world, practical problem-solving experience. The program includes a core course in leadership and innovation, highlighting an emphasis within the program of producing graduates equipped with the skills and knowledge to take on leading roles within academic, governmental and non-governmental organizations.

The program offers flexibility by enabling the students to focus on different areas of interest through their choice of electives and projects related to cybersecurity, such as computer system security, network security, digital forensics, biometrics, secure hardware systems, and cybersecurity policy and management.

Program Focus

The development of extensive, advanced knowledge in the field of cybersecurity, covering major areas such as applied cryptography, computer and network security, secure software / hardware systems, and cybersecurity policy, management, and ethics.

Hands-on experience with real-world projects related to secure software / hardware design and implementation, secure mobile systems, information security risk analysis, computer and network forensics, etc.

A multi-faceted curriculum covering multidisciplinary aspects that are not only related to cybersecurity technology but also cover policy, management, ethics, and IT security.

A research thesis or industrial project involving original work related to cybersecurity, guided by world-class faculty members from HBKU, the HBKU Research Institutes, and other stakeholders.

Curriculum

A 37-credit program, taught in English, typically over 2 years that includes:

- 4 core courses to provide students coming from diverse backgrounds with a coherent learning environment to tackle issues in cybersecurity. The core courses are:
 - Cybersecurity Policy, Management and IT Ethics
 - Applied Cryptography
 - Computer and Network Security
 - Security Risk Analysis for Corporations and Organizations
- 4 elective courses covering engineering and computer science topics in addition to a variety of cybersecurity electives, providing the students with a solid base and a depth of knowledge to fully understand different aspects of cybersecurity. Additionally there will be the opportunity to take an elective focusing on entrepreneurship.
- 2 semesters of graduate research seminars aimed at expanding students' horizons by offering a broad range of topics, through talks by invited experts and presentations from those working in industry, research institutes, academia, and government institutions and organizations.
- 1 course on leadership and innovation aimed at providing the students with the skill-sets required to become leaders in this rapidly evolving field.
- A 9-credit research thesis or 6-credit industrial project.

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Research

Research is integral to Hamad Bin Khalifa University's mission to help build human capacity in Qatar, playing a pivotal role in HBKU's academic programs across all its colleges.

- [Qatar Environment and Energy Research Institute \(QEERI\)](#)
- [Qatar Biomedical Research Institute \(QBRI\)](#)
- [Qatar Computing Research Institute \(QCRI\)](#)