MSc in Cybersecurity

Professional Occupations

1. Secure Systems Analyst
2. Penetration Tester and Ethical Hacker
3. Secure Systems Architect
4. Security Software Engineer
5. Vulnerability Analyst
6. Systems/Information Security Manager

Program Overview

The Master of Science (MSc) in Cybersecurity program emphasizes a rigorous foundation in the core disciplines of information security and software engineering. The program is designed in line with the best practices of prominent universities offering similar programs. The program offers students fundamental knowledge, skills, and first-hand experience in cybersecurity by balancing theory and practice, engaging students in active learning, and encouraging collaboration on projects drawn from real-world contexts. Our students enter the program with a strong foundation in computer science or applied computing. They leave the program with a deep knowledge of cybersecurity.

Program Objectives

- Develop the technical capabilities of professionals in cybersecurity to address/mitigate cybersecurity threats and vulnerabilities.
- Equip graduates with the knowledge and skills necessary to strengthen the cybersecurity of public and private sector organizations.
- Encourage innovation, research, and development of cybersecurity technologies that can protect against cybersecurity threats and improve privacy.
- Prepare graduates to take on leadership roles in cybersecurity, capable of developing and implementing cybersecurity strategies and policies at national and organizational levels.

Program Structure

The MSc in Cybersecurity program at Alfaisal University is designed to equip students with both foundational and advanced knowledge in the field of cybersecurity.

The program structure incorporates a core component and a selection of elective courses, enabling students to focus on specific cybersecurity areas.

Students in the Cybersecurity MS program have the choice between a thesis and a non-thesis (project) option.

Thesis Option

Students opting for the thesis track are required to complete seven core and one elective in addition to their thesis work. The thesis is valued at 18 credits, with a total of 24 credit hours of coursework. This option is ideal for those interested in doing research or academic careers in cybersecurity.

Project Option

Students choosing the non-thesis track are required to complete eight core and two elective courses in addition to the project which accounts for 12 credits. This path totals 30 credit hours of coursework and is suited to those aiming for a practical, hands-on approach in their cybersecurity career. totals 30 credit hours of coursework and is suited to those aiming for a practical, hands-on approach in their cybersecurity career.

Credit Hours Required for MSc in Cybersecurity — Thesis Option

Type of Courses	Compulsory	Elective	Total
Core	21	-	21
Elective	-	3	3
Thesis	18	-	18
Total	33	3	42

Credit Hours Required for MSc in Cybersecurity — Project Option

Type of Courses	Compulsory	Elective	Total
Core	21	-	24
Elective	-	6	6
Thesis	12	-	12
Total	36	6	42

Summary (Thesis Option)

Courses	Credit Hours
Core and elective courses	24
Thesis I (MCS 600)	9
Thesis II (MCS 601)	9
Total credit hours required	42

Summary (Project Option)

Courses	Credit Hours
Core and elective courses	30
Project I (MCS 595)	6
Project II (MCS 596)	6
Total credit hours required	42

Thesis Option — Year One - Fall semester

Course Code	Course Title	Credit Hours
MCS 501	Cryptography	3
MCS 502	Vulnerability and Security Assessment	3
MCS 503	Advanced Secure Software Engineering	3

Project Option — Year One - Fall semester

Course Code	Course Title	Credit Hours
MCS 501	Cryptography	3
MCS 502	Vulnerability and Security Assessment	3
MCS 503	Advanced Secure Software Engineering	3

Thesis Option — Year One - Spring semester

Course Code	Course Title	Credit Hours
MCS 504	Advanced Network Security	3
MCS 505	Computer Forensics	3
MCS 506	Security Ethics, Law and Policy	3

Project Option — Year One - Spring semester

Course Code	Course Title	Credit Hours
MCS 504	Advanced Network Security	3
MCS 505	Computer Forensics	3
MCS 506	Security Ethics, Law and Policy	3

Thesis Option — Year Two - Fall semester

Course Code	Course Title	Credit Hours
MCS 507	Advanced, Etjhcal Hacking and Penetration Testing	3
MCS 600	Thesis I	9

Project Option — Year Two - Fall semester

Course Code	Course Title	Credit Hours
MCS 507	Advanced, Etjhcal Hacking and Penetration Testing	3
MCS 5xx	Elective I	3
MCS 595	Project I	6

Thesis Option — Year Two - Spring semester

Course Code	Course Title	Credit Hours
MCS 5xx	Elective I	3
MCS 601	Thesis II	9

Project Option — Year Two - Spring semester

Course Code	Course Title	Credit Hours
MCS 508	Security for Emerging Technologies	3
MCS 5xx	Elective II	3
MCS 596	Project II	6

List of Elective Courses (Select 1 Course, 3 Credit Hours)

Course code	Course Name	CHrs
MCS 508	Security for Emerging Technologies	3
MCS 521	Special topics in Cybersecurity	3
MCS 522	Advanced Cryptography and	3
MCS 523	Database Security	3
MCS 524	Web Application Security	3
MCS 525	Mobile Security	3
MCS 526	Hardware/Software Reverse	3

List of Elective Courses (Select 2 Courses, 6 Credit Hours)

Course Code	Course Name	CHrs
MCS 521	Special topics in Cybersecurity	3
MCS 522	Advanced Cryptography and	3
MCS 523	Database Security	3
MCS 524	Web Application Security	3
MCS 525	Mobile Security	3
MCS 526	Hardware/Software Reverse	3

Taming technology and disseminating knowledge is what we do. Engineering innovative software to make the world better IS WHAT YOU'LL DO.