Computer Science MSc

Cybersecurity Specialization

2024

	1.	2.	3.	4.
Core courses	Research methodology 5 ECTS (lecture, practice) Horváth Zoltán	Design and Analysis of Algorithms 4 ECTS (lecture) Szabó László Advanced Software Technology 4 ECTS (lecture) Dévai Gergely		Thesis work 30 ECTS
Compulsory Courses of the Specialization	Symmetric Key Cryptography 4 ECTS (lecture, practice) Mérai László, Ligeti Péter Introduction to Offensive Security I 4 ECTS (lecture, practice) Tihanyi Norbert, Borsos Bertalan Introductory Mathematics for Cybersecurity Specialisation 1 ECTS (practice) Burcsi Péter Privacy Enhancing Technologies 4 ECTS (lecture, practice) Gyarmati Máté	Public Key Cryptography 4 ECTS (lecture, practice) Mérai László, Ligeti Péter Introduction to Offensive Security II 4 ECTS (lecture, practice) Tihanyi Norbert, Borsos Bertalan Network Security 2 ECTS (lecture, practice) Mohammed Kamel Introduction to Data Security 4 ECTS (lecture) Lendák Imre	Cryptographic Protocols 6 ECTS (lecture) Mohammed Kamel Penetration Testing 6 ECTS (lecture, practice) Tihanyi Norbert, Borsos Bertalan Topics in Cryptography Seminar 4 ECTS (practice) Burcsi Péter	
Compulsory Elective Courses of the Specialization	Side-Channel Security 4 ECTS (lecture, practice) Hanyecz Ottó Introduction to Quantum Information 4 ECTS (lecture, practice) Kiss Tamás Cyber Security Lab I. 4 ECTS Mathematical foundation of cryptocurrencies 4 ECTS (lecture) Seres István Development of Financial IT Systems 6 ECTS (lecture) Molnár Bálint Preparation Course for Master Studies and Developing Learning Skills 2 ECTS (practice) Takács Rita	Vulnerability Analysis Seminar 4 ECTS (practice) Tihanyi Norbert, Borsos Bertalan Quantum Cryptography 4 ECTS (lecture, practice) Ligeti Péter, Hanyecz Ottó Cyber Security Lab I. 4 ECTS Cyber Security Lab II. 6 ECTS Numerical Methods for Optimization 6 ECTS (lecture) Gergó Lajos Software Quality and Testing 6 ECTS (lecture) Kovács Attila Machine Learning 6 ECTS (lecture) Horváth Tomáš	Side-Channel Security 4 ECTS (lecture, practice) Hanyecz Ottó Introduction to Quantum Information 4 ECTS (lecture, practice) Kiss Tamás Cyber Security Lab I. 4 ECTS Cyber Security Lab II. 6 ECTS Post-Quantum Cryptography 4 ECTS (lecture) Kutas Péter Secure Multiparty Computation 4 ECTS (lecture) Ligeti Péter Zero-Knowledge Proofs and Applications 4 ECTS (lecture) Burcsi Péter Provably Secure Modular Design of Cryptographic Protocols 4 ECTS (lecture, practice) Kovács Attila Development of Financial IT Systems 6 ECTS (lecture) Molnár Bálint	

Some courses are recommended for multiple semesters, but even these can only be taken once overall.

Overall 120 ECTS are required, on average 30 per semester.

Detailed curriculum:

https://www.inf.elte.hu/th-tematikak-ptimsc-2024-cybersecurity

Elective course with cryptography focus

Elective course with other cybersecurity focus

Elective course from other specializations

weak prerequisite (can be taken in the same semester)

strong prerequisite (to be fulfilled in previous semester)