Computer Science MSc (Cybersecurity specialization)

Compulsory subjects

Code	Subject	Subject prerequisite	Lecture (L)	Practice (Pr)	Credit	Semester *	Recommended semester			
							1st	2nd	3rd	4th
IPM-24fkbIOS1EG	Introduction to Offensive Security I. L+Pr.		1	1	4	A	4			
IPM-24fkbIMCSG	Introductory mathematics for Cybersecurity Specialisation		0	1	1	A	1			
IPM-24fkbPETEG	Privacy enhancing technologies L.+Pr.		1	1	4	A	4			
IPM-22fRMEG	Research methodology L+Pr. **		1	2	5	A,S	5			
IPM-24fkbSKCE	Symmetric key cryptography L.	(6*)	2	0	2	A	2			
IPM-24fkbSKCG	Symmetric key cryptography Pr.	IPM-24fkbIMCSG (7*)	0	2	2	A	2			
IPM-22fASTE	Advanced Software Technology L. **		2	0	4	S		4		
IPM-24fkbIDSE	Introduction to data security L.		2	0	4	S		4		
IPM-24fkbIOS2EG	Introduction to Offensive Security II. L.+ Pr.	IPM-24fkbIOS1EG	1	1	4	S		4		
IPM-22fDAAE	Design and analysis of algorithms L. **		2	0	4	S		4		
IPM-24fkbNSE	Network security L.	(6*)	2	0	2	S		2		
IPM-24fkbPKCE	Public Key Cryptography	IPM-24fkbSKCE	2	0	4	S		4		
IPM-22fkbCRPE	Cryptographic protocols L.	(6*)	2	0	3	A			3	
IPM-22fkbCRPG	Cryptographic protocols Pr.		0	2	3	A			3	
IPM-24fkbPTE	Penetration testing L.	(6*)	2	0	3	A			3	
IPM-24fkbPTG	Penetration testing Pr.	IPM-24fkbIOS1EG (7*)	0	2	3	A			3	
IPM-24fkbTCG	Topics in cryptography seminar Pr.		0	2	4	A			4	
	Compulsory subject credits in total				**56**		**18**	**22**	**16**	
	Elective subjects				6		6			
	Compulsory elective subjects ***				28		6	8	14	
IPM-22fTHCONS	**Thesis consultation**				30	A,S				30
IPM-22fPRG	**Internship (4*)**				0					
	Total credits per semester						30	30	30	30
	Total credits				120					

* Subjects are offered either in the Autumn semester (A) or in the Spring semester (S) or in both (A,S).
** Core subject of the Computer Science MSc study programme regardless the specialization.
*** From the list of compulsory elective subjects, students are required to fulfill subjects in the amount of 28 credits.
(4*) The required duration of the internship is 6 weeks (240 hours). The requirement of internship is fulfilled by the completion of subjects Cyber Security Lab I&II.
(5*) The accomplishment is mandatory for international students. Credits are counted as compulsory elective subject credits.
(6*) Fulfilment of the practice part is the prerequisite of obtaining a grade in the lecture part.
(7*) Weak prerequisite: the two subjects can be taken in the same semester, fulfilment of the prerequisite subject is a requirement of obtaining a grade in the other subject.

Compulsory elective subjects of Cybersecurity specialization

Code	Subject	Subject prerequisite	Lecture (L)	Practice (Pr)	Credit	Semester *	Recommended semester			
							1st	2nd	3rd	4th
IPM-24fkbIQIE	Introduction to Quantum Information L.	(6*)	2	0	2	A	2			
IPM-24fkbIQIG	Introduction to Quantum information Pr.		0	2	2	A	2			
IPM-24fkbMFCE	Mathematical foundation of cryptocurrencies L.		2	0	4	A	4			
IPM-22fkbPCMSG	Preparation course for master studies and developing learning skills Pr. (5*)		0	3	2	A	2			
IPM-24fkbSCSE	Side-channel security L.	(6*)	2	0	2	A	2			
IPM-24fkbSCSG	Side-channel security Pr.		0	2	2	A	2			
IPM-22fkbODSEG	Numerical Methods for Optimization L+Pr.		2	2	6	S		6		
IPM-24fkbQCRE	Quantum Cryptography L.	(6*)	2	0	2	S		2		
IPM-24fkbQCRG	Quantum cyrptography Pr.	IPM-24fkbIQIE	0	2	2	S		2		
IPM-22fkbSQTE	Software quality and testing L.	(6*)	2	0	3	S		3		
IPM-22fkbSQTG	Software quality and testing Pr.		0	2	3	S		3		
IPM-24fkbVASG	Vulnerability analysis seminar Pr.		0	2	4	S		4		
IPM-22fkbSCLAB1	Cyber Security Lab I		0	2	4	A,S			4	
IPM-22fkbSCLAB2	Cyber Security Lab II.	IPM-22fkbSCLAB1 (7*)	0	2	4	A,S			4	
IPM-22fkbDFISE	Development of Financial IT Systems L.	(6*)	2	0	3	A			3	
IPM-22fkbDFISG	Development of Financial IT Systems Pr.		0	2	3	A			3	
IPM-24fkbPQCE	Post-quantum cryptography L.		2	0	4	A			4	
IPM-24fkbCRAE	Provably secure modular design of cryptographic protocols L.	(6*)	2	0	2	A			2	
IPM-24fkbCRAG	Provably secure modular design of cryptographic protocols Pr.		0	2	2	A			2	
IPM-24fkbSMCE	Secure multiparty computation L.		2	0	4	A			4	
IPM-24fkbZKPAE	Zero-knowledge proofs and applications L.		2	0	4	A			4	

From the list of compulsory elective subjects, students are required to fulfill subjects in the amount of 28 credits.

The accomplishment of the following listed subjects is mandatory only for EIT students.
Students do not participating in the EIT Digital Master programme can obtain elective subject credits for fulfilling them:

IPM-22fl&EBEG	I&E Basics
IPM-22fl&EBDL1G	Business Development Lab I.
IPM-22fl&EBDL2G	Business Development Lab II.
IPM-22fl&EIAOEEG	Innosocial aspects of entrepreneurship
IPM-22fl&ETSSG	Thematic Summer Schools with I&E project
IPM-22fl&ESTEG	I&E Study

Last update: 28 August, 2025