

## Computer Science MSc (Cybersecurity specialization 2024)

### Core Courses

Code	Courses	Lecture (L)	Practice (Pr)	Labor	Consultation	Requirement	Credit	Semester	Subject requirement	1st Semester	2nd Semester	3rd Semester	4th Semester
IPM-22fRMEG	Research methodology L+Pr.	1	2	0	2	XPG	5	1		2+2+0+1			
IPM-22fASTE	Advanced Software Technology L.	2	0	0	2	E	4	2			2+0+0+2		
IPM-22fDAAE	Design and analysis of algorithms L.	2	0	0	2	E	4	2			2+0+0+2		
IPM-22fPRG	Internship						0	2-4					240 hours
	<b>Core course credits</b>						<b>13</b>			<b>5</b>	<b>8</b>		

### Compulsory Courses of the Specialization

Code	Courses	Lecture (L)	Practice (Pr)	Labor	Consultation	Requirement	Credit	Semester	Subject requirement	1st Semester	2nd Semester	3rd Semester	4th Semester
IPM-24fkbIMCSG	Introductory mathematics for Cybersecurity Specialisation	0	1	0	0	PG	1	1		2+0+0+0			
IPM-24fkbIOS1EG	Introduction to Offensive Security I.	1	1	0	2	XPG	4	1		0+0+2+1			
IPM-24fkbPETEG	Privacy enhancing technologies	1	1	0	2	XE	4	1		2+0+0+0			
IPM-24fkbSKCE	Symmetric key cryptography	2	0	0	1	E	2	1	IPM-24fkbSKCG (week)	0+2+0+1			
IPM-24fkbSKCG	Symmetric key cryptography	0	2	0	0	PG	2	1		2+2+0+2			

IPM-24fkbIDSE	Introduction to Data Security	2	0	0	2	E	4	2			2+0+0+2		
IPM-24fkbIOS2EG	Introduction to Offensive Security	1	1	0	2	XPG	4	2			1+0+1+2		
IPM-24fkbNSE	Network security	2	0	0	0	E	2	2			2+0+0+0		
IPM-24fkbPKCG	Public key cryptography	2	0	0	2	E	4	2			2+0+0+2		
IPM-24fkbPTE	Penetration testing	2	0	0	1	E	3	3	IPM-24fkbPTG (week)			2+0+0+1	
IPM-24fkbPTG	Penetration testing	0	2	0	1	PG	3	3				0+0+2+1	
IPM-24fkbTCG	Topics in cryptography seminar	0	2	0	2	PG	4	3				0+0+2+2	
IPM-22fkbCRPE	Cryptographic protocols	2	0	0	1	E	3	3	IPM-22fkbCRPG (week)			2+0+0+1	
IPM-22fkbCRPG	Cryptographic protocols	0	0	2	1	PG	3	3				0+2+0+1	
	<b>Compulsory course credits</b>						<b>43</b>				<b>13</b>	<b>14</b>	<b>16</b>
	<b>Compulsory elective course credits</b>						<b>28</b>				<b>12</b>	<b>8</b>	<b>8</b>
	<b>Optional course</b>						<b>6</b>	<b>3</b>					<b>6+0+0</b>
<b>IPM-24fTHCONS</b>	<b>Thesis consultation</b>		<b>5</b>		<b>10</b>	<b>PG</b>	<b>30</b>	<b>4</b>					<b>signature</b>
	<b>Summa credit in semester</b>										<b>30</b>	<b>30</b>	<b>30</b>
	<b>Summa credit</b>						<b>120</b>						

### Compulsory Elective Courses of the Specialization

Code	Courses	Lecture (L)	Practice (Pr)	Labor	Consultation	Requirement	Credit	Semester	Subject requirement	1st Semester	2nd Semester	3rd Semester	4th Semester
IPM-22fkbPCMSG	Preparation course for master studies and developing learning skills.	0	3	0	0	PG	2	1		0+0+3+0			
IPM-22fkbDFISE	<i>Development of Financial IT Systems</i>	2	0	0	1	E	3	1,3	IPM-22fkbDFISG (week)	2+0+0+1		2+0+0+1	

IPM-22fkbDFISG	<i>Development of Financial IT Systems</i>	0	0	2	1	PG	3	1,3		0+2+0+1		0+2+0+1	
IPM-24fkbIQIE	<i>Introduction to Quantum Information</i>	2	0	0	0	E	2	1	IPM-24fkbIQIG (week)	2+0+0+0			
IPM-24fkbIQIG	<i>Introduction to Quantum information</i>	0	2	0	0	PG	2	1		0+0+2+0			
IPM-24fkbSCSE	Side-channel security	2	0	0	0	E	2	1	IPM-24fkbSCSG (week)	2+0+0+0			
IPM-24fkbSCSG	Side-channel security	0	2	0	0	PG	2	1		0+0+2+0			
IPM-22fkbMLEG	Machine Learning	2	0	2	2	XE	6	2			2+2+0+2		
IPM-22fkbODSEG	Numerical Methods for Optimization	2	0	2	2	XPG	6	2			2+2+0+2		
IPM-22fkbSQTE	Software quality and testing	2	0	0	1	E	3	2	IPM-22fkbSQTG (week)		2+0+0+1		
IPM-22fkbSQTG	Software quality and testing	0	0	2	1	PG	3	2			0+2+0+1		
IPM-24fkbQCRE	Quantum Cryptography	2	0	0	0	E	2	2	IPM-24fkbQCRG (week)		2+0+0+0		
IPM-24fkbQCRG	Quantum Cryptography	0	2	0	0	PG	2	2			0+0+2+0		
IPM-24fkbVASG	Vulnerability analysis seminar	0	2	0	2	PG	4	2			0+0+2+2		
IPM-22fkbSCLAB1	Cyber Security Lab I.	0	0	2	2	PG	4	1,2,3				0+2+0+2	
IPM-22fkbSCLAB2	Cyber Security Lab II.	0	0	2	2	PG	4	1,2,3				0+4+0+2	
IPM-24fkbCRAE	<i>Provably secure modular design of cryptographic protocols</i>	2	0	0	0	E	2	3	IPM-24fkbCRAG (week)			2+0+0+0	
IPM-24fkbCRAG	<i>Provably secure modular design of cryptographic protocols</i>	0	2	0	0	PG	2	3				0+0+2+0	
IPM-24fkbPQCE	<i>Post-quantum cryptography</i>	2	0	0	2	E	4	3				2+0+0+2	
IPM-24fkbSMCE	<i>Secure multiparty computation</i>	2	0	0	2	E	4	3				2+0+0+2	
IPM-24fkbZKPAE	Zero-knowledge proofs and applications	2	0	0	2	E	4	3				2+0+0+2	

I&E modul													
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IPM-22fi&EBEG	I&E Basics	2	2	0	2	XPG	6	1		2+0+2+2			
IPM-22fi&EBDL1G	Business Development Lab I.	0	2	0	2	PG	4	1		0+0+2+2			
IPM-22fi&EBDL2G	Business Development Lab II.	0	2	0	2	PG	4	2			0+0+2+2		
IPM-22fi&EIAOEEG	Innosocial aspects of the entrepreneurship	2	2	0	2	XPG	6	2			2+0+2+2		
IPM-22fi&ETSSG	Thematic Summer Schools with I&E project	1	1	0	2	XPG	4	2			1+0+1+2		
IPM-22fi&ESTEG	I&E Study	2	2	0	2	XPG	6	3				2+0+2+2	
	<b>Summa credit in semester</b>									<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>
	<b>Summa credit</b>						<b>120</b>						

PG: Practice Grade E: Exam Grade XPG: Lecture+Practice with Practical Grade XE: Lecture+Practice with Exam