

Az angol nyelvű Programtervező informatikus MSc 2018 és a programtervező informatikus MSc 2022 specializációinak tantárgyi lefedései

ELOSZTOTT SZOFTVERRENDSZEREK SPECIALIZÁCIÓ (SOFTWARE AND SERVICES ARCHITECTURES)			
Specializáció kötelező tárgyai			
Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-18feszTPE	Theory of programming L.	IPM-22feszTPE	Theory of programming L.
IPM-18feszTPG	Theory of programming Pr.	IPM-22feszTPG	Theory of programming Pr.
IPM-18feszSQTE	Software quality and testing L.	IPM-22feszSQTE	Software quality and testing L.
IPM-18feszSQTG	Software quality and testing Pr.	IPM-22feszSQTG	Software quality and testing Pr.
IPM-18feszFSE	Formal semantics L.	IPM-22feszFSE	Formal semantics L.
IPM-20feszSALAB1	Software Architecture Lab I.	IPM-22feszSALAB1	Software Technology Lab I.
IPM-18feszDDSE	Design of distributed systems L.	IPM-22feszDDSE	Design of distributed systems L.
IPM-18feszDDSG	Design of distributed systems Pr.	IPM-22feszDDSG	Design of distributed systems Pr.
IPM-20feszSALAB2	Software Architecture Lab II.	IPM-22feszSALAB2	Software Technology Lab II.

Specializáció kötelezően választható tárgyai			
Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-18feszMCE	Models of computation L.	IPM-22feszMCE	Models of computation L.
IPM-18feszMCG	Models of Computation Pr.	IPM-22feszMCG	Models of Computation Pr.
IPM-18feszAJPE	Advanced Java programming L.	IPM-22feszAJPE	Advanced Java programming L.
IPM-18feszAJPG	Advanced Java programming Pr.	IPM-22feszAJPG	Advanced Java programming Pr.
IPM-20fIDSEG	Introduction to Data Science L+Pr.	IPM-22feszIDSEG	Introduction to Data Science L+Pr.
IPM-20fpiPAIEG	Principles of artificial intelligence L+Pr.	IPM-22feszPAIEG	Principles of artificial intelligence L+Pr.
IPM-18feszSESCE	Service Science L.	IPM-22feszSESCE	Service Science L.
IPM-18feszSESCG	Service Science Pr.	IPM-22feszSESCG	Service Science Pr.
IPM-18feszCISE	Complex information systems L.	IPM-22feszCISE	Complex information systems L.
IPM-18feszCISG	Complex information systems Pr.	IPM-22feszCISG	Complex information systems Pr.
IPM-18feszFUNLEG	Functional Languages L+Pr.	IPM-22feszFUNLEG	Functional Languages L+Pr.
IPM-18feszSEAPE	Scalable enterprise applications L.	IPM-22feszSEAPE	Scalable enterprise applications L.
IPM-18feszSEAPG	Scalable enterprise applications Pr.	IPM-22feszSEAPG	Scalable enterprise applications Pr.
IPM-18feszADSEG	Analysis of distributed systems L+Pr.	IPM-22feszADSEG	Analysis of distributed systems L+Pr.

MESTERSÉGES INTELLIGENCIA SPECIALIZÁCIÓ (ARTIFICIAL INTELLIGENCE)

Specializáció kötelező tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-21fmiDNDEG	Deep Network Developments L+Pr.	IPM-22fmiDNDEG	Deep Network Developments L+Pr.
IPM-19fmiPAIEG	Principles of artificial intelligence L+Pr.	IPM-22fmiPAIEG	Principles of artificial intelligence L+Pr.
IPM-19fmiMTAAEG	Methods and tools for AI applications L+Pr.	IPM-22fmiMTAAEG	Methods and tools for AI applications L+Pr.
IPM-20fmiDRLEG	Deep Reinforcement Learning L+Pr.	IPM-22fmiDRLEG	Deep Reinforcement Learning L+Pr.

Specializáció kötelezően választható tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-19fmiMASEG	Multi-agent systems L+Pr.	IPM-22fmiMASEG	Multi-agent systems L+Pr.
IPM-19fmiROBEG	AI Robotics L+Pr.	IPM-22fmiROBEG	AI Robotics L+Pr.
IPM-19fmiCVEG	3D Computer Vision L+Pr.	IPM-22fmiCVEG	3D Computer Vision L+Pr.
IPM-20fmiDSEG	Introduction to Data Science L+Pr.	IPM-22fmiDSEG	Introduction to Data Science L+Pr.
IPM-19fmiMLEG	Machine Learning L+Pr.	IPM-22fmiMLEG	Machine Learning L+Pr.
IPM-19fmiAMLEG	Advanced Machine Learning L+Pr.	IPM-22fmiAMLEG	Advanced Deep Network Development
IPM-19fmiCOSCEG	Cognitive sciences L+Pr.	IPM-22fmiCOSCEG	Cognitive sciences L+Pr.
IPM-19fmiACEG	Affective computing L+Pr.	IPM-22fmiACEG	Affective computing L+Pr.
IPM-21fmiFDSE	Foundations of Data Science	IPM-22fmiTAMEG	Topics in Applied Mathematics
IPM-21fmiFDSEG	Foundations of Data Science		
IPM-19fmiGTEG	Game theory L+Pr.	IPM-22fmiGTEG	Game theory L+Pr.
IPM-20fmiNLPEG	Natural Language Processing	IPM-22fmiNLPEG	Natural Language Processing
IPM-20fmiLP1E	Logic programming I.	IPM-22fmiLPE	Logic programming L
IPM-20fmiLP2G	Logic programming II.	IPM-22fmiLPG	Logic programming Pr
IPM-21fmiCIEG	Computational Intelligence	IPM-22fmiCIEG	Computational Intelligence
IPM-21fmiSIEG	Societal Intelligence	IPM-22fmiCOLLIEG	Collective Intelligence
IPM-21fmiAIPLAB1	AI Project Lab I.	IPM-22fmiAIPLAB1	AI Project Lab I.
IPM-21fmiAIPLAB2	AI Project Lab II.	IPM-22fmiAIPLAB2	AI Project Lab II.

KIBERBIZTONSÁG SPECIALIZÁCIÓ (CYBER SECURITY)

Specializáció kötelező tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-20fIDSEG	Introduction to Data Science L+Pr.	IPM-22fkbDSEG	Introduction to Data Science L+Pr.
IPM-18fkbICSE	Introduction to Computer Security L.	IPM-22fkbICSE	Introduction to Computer Security L.
IPM-18fkbICSG	Introduction to Computer Security Pr.	IPM-22fkbICSG	Introduction to Computer Security Pr.
IPM-18fkbCGE	Cryptography L.	IPM-22fkbCGE	Cryptography L.
IPM-18fkbCGG	Cryptography Pr.	IPM-22fkbCGG	Cryptography Pr.
IPM-18fkbSQTE	Software quality and testing L.	IPM-22fkbSQTE	Software quality and testing L.
IPM-18fkbSQTG	Software quality and testing Pr.	IPM-22fkbSQTG	Software quality and testing Pr.
IPM-18fkbNSSE	Network and System Security L.	IPM-22fkbNSSE	Network and System Security L.
IPM-18fkbNSSG	Network and System Security Pr.	IPM-22fkbNSSG	Network and System Security Pr.
IPM-18fkbACRE	Advanced cryptography L.	IPM-22fkbACRE	Advanced cryptography L.
IPM-18fkbACRG	Advanced cryptography Pr.	IPM-22fkbACRG	Advanced cryptography Pr.
IPM-18fkbCRPE	Cryptography protocols L.	IPM-22fkbCRPE	Cryptographic Protocols L.
IPM-18fkbCRPG	Cryptography protocols Pr.	IPM-22fkbCRPG	Cryptographic Protocols Pr.
IPM-20fkbSCLAB1	Cyber Security Lab I	IPM-22fkbSCLAB1	Cyber Security Lab I
IPM-20fkbSCLAB2	Cyber Security Lab II.	IPM-22fkbSCLAB2	Cyber Security Lab II.
IPM-21fkbCRAE	Provably secure modular design of cryptographic protocols L	IPM-22fkbCRAE	Provably secure modular design of cryptographic protocols L
IPM-21fkbCRAG	Provably secure modular design of cryptographic protocols Pr	IPM-22fkbCRAG	Provably secure modular design of cryptographic protocols Pr

ADATTUDOMÁNY SPECIALIZÁCIÓ (DATA SCIENCE)

Specializáció kötelező tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-20fIDSEG	Introduction to Data Science L+Pr.	IPM-22fatDSEG	Introduction to Data Science L+Pr.
IPM-18fatFDSE	Foundations of Data Science L.	IPM-22fatTAMEG	Topics in Applied Mathematics L+Pr.
IPM-18fatFDSG	Foundations of Data Science Pr.		
IPM-18fatMLEG	Machine Learning L+Pr.	IPM-22fatMLEG	Machine Learning L+Pr.
IPM-20fatODSEG	Optimization for Data Science L+Pr.	IPM-22fatODSEG	Numerical Methods for Optimization L+Pr.
IPM-20fatDSLALB1	Data Science Lab I	IPM-22fatDSLALB1	Data Science Lab I
IPM-20fatDSLALB2	Data Science Lab II	IPM-22fatDSLALB2	Data Science Lab II
IPM-18fatSMEG	Stream Mining L+Pr.	IPM-22fatSMEG	Stream Mining L+Pr.
IPM-18fatAMLEG	Advanced Machine Learning L+Pr.	IPM-22fatAMLEG	Advanced Deep Network Development L+Pr.
IPM-18fatOSTEG	Open-source Technologies for Real-time Data Analytics L+Pr.	IPM-22fatOSTEG	Open-source Technologies for Data Science L+Pr.

Specializáció kötelezően választható tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
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IPM-18fatTPE	Theory of programming L.	IPM-22fatTPE	Theory of programming L.
IPM-18fatTPG	Theory of programming Pr.	IPM-22fatTPG	Theory of programming Pr.
IPM-18fatDMDBE	Data models and databases L.	IPM-22fatDMDBE	Data models and databases L.
IPM-18fatDMDBG	Data models and databases Pr.	IPM-22fatDMDBG	Data models and databases Pr.
IPM-18fatCISE	Complex information systems L.	IPM-22fatCISE	Complex information systems L.
IPM-18fatCISG	Complex information systems Pr.	IPM-22fatCISG	Complex information systems Pr.
IPM-18fatNSEG	Network Science L+Pr.	IPM-22fatNSEG	Network Science L+Pr.

PÉNZÜGYI INFORMATIKA SPECIALIZÁCIÓ (FINTECH)

Specializáció kötelező tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-20fIDSEG	Introduction to Data Science L+Pr.	IPM-22fIDSEG	Introduction to Data Science L+Pr.
IPM-20fpiCSE	Introduction to Computer Security L.	IPM-22fpiCSE	Introduction to Computer Security L.
IPM-20fpiCSG	Introduction to Computer Security Pr.	IPM-22fpiCSG	Introduction to Computer Security Pr.
IPM-20fpiIFE	Introduction to Finance L.	IPM-22fpiIFE	Introduction to Finance L.
IPM-20fpiIFG	Introduction to Finance Pr.	IPM-22fpiIFG	Introduction to Finance Pr.
IPM-20fpiSESCE	Service Science L.	IPM-22fpiSESCE	Service Science L.
IPM-20fpiSESCG	Service Science Pr.	IPM-22fpiSESCG	Service Science Pr.
IPM-20fpiSESCE	Complex information systems L.	IPM-22fpiSESCE	Complex information systems L.
IPM-20fpiCISG	Complex information systems Pr.	IPM-22fpiCISG	Complex information systems Pr.
IPM-20fpiBIE	Business Intelligence L.	IPM-22fpiBIE	Business Intelligence and Data Visualization L.
IPM-20fpiBIG	Business Intelligence Pr.	IPM-22fpiBIG	Business Intelligence and Data Visualization Pr.
IPM-20fpiDFISE	Development of Financial IT Systems L.	IPM-22fpiDFISE	Development of Financial IT Systems L.
IPM-20fpiDFISG	Development of Financial IT Systems Pr.	IPM-22fpiDFISG	Development of Financial IT Systems Pr.
IPM-20fpiFTLAB1	Fintech Lab I	IPM-22fpiFTLAB1	Fintech Lab I
IPM-20fpiFTLAB2	Fintech Lab II.	IPM-22fpiFTLAB2	Fintech Lab II.

Specializáció kötelezően választható tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPM-20fpiPAIEG	Principles of artificial intelligence L+Pr.	IPM-22fpiPAIEG	Principles of artificial intelligence L+Pr.
IPM-20fpiMLEG	Machine Learning L+Pr.	IPM-22fpiMLEG	Machine Learning L+Pr.
IPM-20fpiAMLEG	Advanced Machine Learning L+Pr.	IPM-22fpiADNDEG	Advanced Deep Network Development
IPM-21fmiSIEG	Societal Intelligence	IPM-22fpiCOLLIEG	Collective Intelligence
IPM-19fmiACEG	Affective computing	IPM-22fmiACEG	Affective computing
IPM-18fatDMDBE	Data models and databases L.	IPM-22fpiDMDBE	Data models and databases L.
IPM-18fatDMDBG	Data models and databases Pr.	IPM-22fpiDMDBG	Data models and databases Pr.
IPM-18fatNSEG	Network Science L+Pr.	IPM-22fpiNSEG	Network Science L+Pr.
IPM-19fmiCOSCEG	Cognitive sciences L+Pr.	IPM-22fpiCOSCEG	Cognitive sciences L+Pr.
IPM-18AOTPME	Project Management	IPM-22fpiPME	Project Management

IPAR 4.0 SPECIALIZÁCIÓ (DIGITAL FACTORY)

Specializáció kötelező tárgyai

Tanegység kód (2018)	Tanegység megnevezése (2018)	Tanegység kód (2022)	Tanegység megnevezése (2022)
IPMSEK-20fi4MSLSG	Master studies and learning skills Pr.	IPMSEK-22fi4MSLSG	Master studies and learning skills Pr.
IPMSEK-20fi4ICSE	Introduction to Computer Security L.	IPMSEK-22fi4ICSE	Introduction to Computer Security L.
IPMSEK-20fi4ICSG	Introduction to Computer Security Pr.	IPMSEK-22fi4ICSG	Introduction to Computer Security Pr.
IPMSEK-20fi4PAIEG	Principles of artificial intelligence L+Pr.	IPMSEK-22fi4PAIEG	Principles of artificial intelligence L+Pr.
IPMSEK-20fi4FEPEG	Manufacturing Engineering for Programmers L+Pr.	IPMSEK-22fi4FEPEG	Manufacturing Engineering for Programmers L+Pr.
IPMSEK-20fi4ROBEG	Industrial robotics L+Pr.	IPMSEK-22fi4ROBEG	Industrial robotics L+Pr.
IPMSEK-20fi4ICEG	Industrial communications L+Pr.	IPMSEK-22fi4ICEG	Industrial communications L+Pr.
IPMSEK-20fi4IDEG	Industrial Databases L+Pr.	IPMSEK-22fi4IDEG	Industrial Databases L+Pr.
IPMSEK-20fi4DMEG	Digital Manufacturing L+Pr.	IPMSEK-22fi4DMEG	Digital Manufacturing L+Pr.
IPMSEK-20fi4HBPEG	Hardware based programming L+Pr.	IPMSEK-22fi4HBPEG	Hardware based programming L+Pr.
IPMSEK-20fi4CNCPEG	CNC programming L+Pr.	IPMSEK-22fi4CNCPEG	CNC programming L+Pr.
IPMSEK-20fi4DAMEG	Data Mining L+Pr.	IPMSEK-22fi4DAMEG	Data Mining L+Pr.
IPMSEK-20fi4DFLAB1	Digital Factory Lab I	IPMSEK-22fi4DFLAB1	Digital Factory Lab I
IPMSEK-20fi4DFLAB2	Digital Factory Lab II.	IPMSEK-22fi4DFLAB2	Digital Factory Lab II.