



**UNIVERSITY of
DEBRECEN**

FACULTY OF INFORMATICS

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Computer Science MSc curriculum – 2021

**Debrecen
2021/2022.**



COMPUTER SCIENCE MSc CURRICULUM

Qualification requirements

General requirements of the diploma are regulated by The Rules and Regulations of The University of Debrecen.

Diploma credit requirements:

Mathematical and computer sciences:	36 credits
compulsory courses:	21 credits
Elective courses:	15 credits
Informatical sciences:	42 credits
compulsory courses:	15 credits
Elective courses:	27 credits
Elective knowledge („Mathematical and computer sciences" or „Informatical")	6 credits
Thesis work:	30 credits
Free choice:	6 credits
Work and Fire Safety Training:	0 credit
Physical Education (1 semester):	0 credit
Total:	120 credits

Mathematical and computer sciences, compulsory courses – needed 21 credits

Code	Subject name	Cred- it	Type and number			Asses- ment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMPA0101-17 INMPA0101E INMPA0101G	Machine learning basics	6	2	2		E S			1
INMPA0102-21 INMPA0102E	Algorithms	3	2			E			1
INMPA0103-21 INMPA0103E INMPA0103L	Cryptography	6	2		2	E S			1
INMPA0205-17 INMPA0205E INMPA0205L	Optimization algorithms	6	2		2	E S			2

Informatical sciences, compulsory courses – needed 15 credits

Code	Subject name	Cred- it	Type and number			Asses- ment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMPA0104-17 INMPA0104E	Information systems	3	2			E			1

Code	Subject name	Cred- it	Type and number			Asses- ment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMPA0206-17 INMPA0206E INMPA0206L	Data mining	6	2		2	E S			2
INMPA0207-17 INMPA0207E INMPA0207L	Computer graphics	6	2		2	E S			2

Thesis work – needed 30 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMPA0308-17 INMPA0308L	Thesis 1	15			10	PM			3
INMPA0409-17 INMPA0409L	Thesis 2	15			10	PM			4

Mathematical and computer sciences, elective courses – needed 15 credits

Code	Subject name	Cred- it	Type and number			Asses- ment	Prerequisites	Period	Semes- ter
			lec.	practice					
				sem.	lab				
INMPA9910-17 INMPA9910L	Operation research	3			2	PM			1
INMPA9911-17 INMPA9911E INMPA9911G	Advanced inference methods	6	2	2		PM			2
INMPA9912-17 INMPA9912E	Logical algorithms	3	2			E			2
INMPA9913-17 INMPA9913E	Geometric modelling	3	2			E	INMPA0207-17		3
INMPA9914-17 INMPA9914E	Coding theory	3	2			E			3
INMPA9915-17 INMPA9915E	Theory of neural networks	3	2			E	INMPA0205-17		3
INMPA9916-17 INMPA9916E	Models of computation	3	2			E			3
INMPA9917-21 INMPA9917E INMPA9917L	Declarative programming	6	2		2	E S			4

Informatical sciences, elective courses – needed 27 credits

(At least one course from „Data science“ block and one course from „Information systems“ block)

„Data science“ block

Code	Subject name	Cred- it	Type and number			Asses- ment	Prerequisites	Period	Semes- ter
			lec.	practice					
				sem.	lab				
INMPA9918-21 INMPA9918L	Geoinformatics	3			2	PM			1
INMPA9919-17 INMPA9919L	Advanced cloud computing	3			2	PM			2
INMPA9920-17 INMPA9920E INMPA9920L	Image processing and medical imaging	6	2		2	PM			2
INMPA9921-17 INMPA9921E INMPA9921L	Visualization and visual analytics	6	2		2	E S	INMPA0207-17		3
INMPA9922-17 INMPA9922L	Data science lab	3			2	PM	INMPA0101-17		4
INMPA9923-17 INMPA9923E INMPA9923L	Advanced machine learning	6	2		2	E S	INMPA0101-17		4

„Information systems“ block

Code	Subject name	Cre- dit	Type and number			Asses- ment	Prerequisites	Period	Semes- ter
			lec.	practice					
				sem.	lab				
INMPA9925-17 INMPA9925E INMPA9925L	Advanced XML technologies	6	2		2	PM			1
INMPA9926-17 INMPA9926L	NoSQL databases	3			2	PM			1
INMPA9927-17 INMPA9927L	Sensor networks and the internet of things	3			2	PM			1
INMPA9924-17 INMPA9924L	Advanced software architecture patterns	3			2	PM			3
INMPA9929-17 INMPA9929L	Text- and webmining	3			2	PM	INMPA0206-17		3
INMPA9930-17 INMPA9930L	Information systems in practice	3			2	PM	INMPA0104-17		4
INMPA9931-17 INMPA9931E INMPA9931L	Advanced software engineering	6	2		2	E S			4

Free choice – needed 6 credit

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				