



**UNIVERSITY of
DEBRECEN**

FACULTY OF INFORMATICS

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Computer Science MSc curriculum – 2021

**Debrecen
2022/2023.**



COMPUTER SCIENCE MSc CURRICULUM

Qualification requirements

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

Work and Fire Safety and Physical Education

The courses of „Work and Fire Safety" and „Physical Education" are worth 1 - 1 credit, which must be completed in excess of the number of credits required for the diploma as specified in the training and outcome requirements of the degree.

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
Professional Training:	9 credits
Elective knowledge („Mathematical and computer sciences" or „Informatical")	6 credits
Thesis work:	30 credits
Free choice:	6 credits
Total:	120 credits
Work and Fire Safety Training:	1 credit
Physical Education (1 semester):	1 credit

Mathematical and computer sciences, compulsory courses – needed 21 credits

Code	Subject name	Cre- dit	Type and number			Asses- ment	Prerequisites	Period	Semes- ter
			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	Credit	Type and number			Asses-ment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMPA0104-17 INMPA0104E	Information systems	3	2			E		1	
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			Asses-ment	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	Credit	Type and number			Asses-ment	Prerequisites	Period	Semester
			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)

Professional Training

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMPA9997-21 INMPA9997G	Professional Training	9				PM		3	

„Data science” block

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			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	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			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	

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

Exam types: E exam
 S signature
 PM practical mark