



# **Computer Science Engineering MSc curriculum – 2021**

**Debrecen  
2022/2023.**

## COMPUTER SCIENCE ENGINEERING 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:

Natural Science:	22 credits
Humane and Economic Knowledge:	10 credits
Compulsory topics:	28 credits
Differentiated knowledge topics:	24 credits
Professional Training:	9 credits
Thesis work:	30 credits
Free choice:	6 credits
<b>Total</b>	<b>120 credits</b>
Work and Fire Safety Training:	1 credit
Physical Education (1 semester):	1 credit

### Natural Science – needed 22 credits

Code	Subject name	Cre- dit	Type and number			Asses- ment	Prerequisites	Period	Semes- ter
			lec.	practice					
				sem.	lab				
INMMA0101-21 INMMA0101E	Introduction the new network communication technologies	3	2			E			1
INMMA0102-17 INMMA0102E INMMA0102L	Mathematics and information theory for engineers	6	2		2	E S			1
INMMA0103-21 INMMA0103E INMMA0103L	System security techniques and solutions	6	2		2	E S			1
INMMA0123-21 INMMA0123L	Machine learning for engineers	3			2	PM			1
INMMA0206-21 INMMA0206E	Computer science in engineering applications	4	2			E			2

### Humane and Economic Knowledge – needed 10 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMMA0207-17 INMMA0207E INMMA0207G	Introduction to Economics and Law	5	2	2		PM		2	
INMMA0208-17 INMMA0208E INMMA0208L	Management and organizational knowledges	5	2		2	PM		2	

### Compulsory topics – needed 28 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMMA0104-17 INMMA0104E INMMA0104G	Performance Evaluation of Infocommunication Networks	6	2	2		E S		1	
INMMA0105-21 INMMA0105E	System architectures	3	2			E		1	
INMMA0124-21 INMMA0124L	Introduction to Big Data	3			2	PM		1	
INMMA0209-17 INMMA0209E INMMA0209L	Logic design using hardware description language	6	2		2	PM		2	
INMMA0210-17 INMMA0210E INMMA0210L	Paralell image processing and pattern recognition	6	2		2	E S		2	
INMMA0211-17 INMMA0211E	Internet of Things systems and technologies	4	2			E		2	

### Thesis work – needed 30 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMMA0312-17 INMMA0312L	Thesis 1	15			10	PM		3	
INMMA0413-17 INMMA0413L	Thesis 2	15			10	PM		4	

### Differentiated knowledge topics – needed 24 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMMA9914-17 INMMA9914E INMMA9914L	Advanced switching and routing 1 (CCNP1)	6	2		2	E S	INMMA0211-17	3	

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INMMA9915-17 INMMA9915E INMMA9915L	Intelligent sensor networks	6	2		2	PM	INMMA0101-21	3	
INMMA9916-17 INMMA9916E INMMA9916L	Multimedia networks	6	2		2	PM	INMMA0211-17	3	
INMMA9917-17 INMMA9917E INMMA9917L	Reconfigurable embedded systems	6	2		2	PM	INMMA0209-17	3	
INMMA9925-21 INMMA9925L	Data processing in a cloud environment	3			2	PM		3	
INMMA9997-21 INMMA9997G	Professional Training	9				PM		3	
INMMA9918-17 INMMA9918E INMMA9918L	Data mining for engineers	6	2		2	E S	INMMA0102-17	4	
INMMA9919-17 INMMA9919E INMMA9919L	Cloud service architectures and services	6	2		2	PM	INMMA0101-21	4	
INMMA9920-17 INMMA9920E INMMA9920L	Advanced switching and routing 2 (CCNP2)	6	2		2	E S	INMMA0211-17	4	
INMMA9921-17 INMMA9921L	Hardware-software codesign	6			4	PM	INMMA0209-17	4	
INMMA9922-17 INMMA9922E INMMA9922L	Microcontroller applications technology	6	2		2	PM	INMMA0105-21	4	
INMMA9926-21 INMMA9926L	Advanced data processing in a cloud environment	3			2	PM	INMMA9925-21	4	
INMMA9927-21 INMMA9927L	Machine learning algorithms in embedded systems	3			2	PM	INMMA0123-21	4	
INMMA9928-17 INMMA9928L	Advanced Development of Autonomous Vehicles	6			4	PM		I	

**Free choice – needed 6 credits**

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

Exam types: E exam  
S signature  
PM practical mark