UNIVERSITY OF DEBRECEN, FACULTY OF INFORMATICS

H-4028 Debrecen, Kassai Road 26., H-4002 Debrecen, P.O. box 400.
☎ 52/518-630, 🖃 to@inf.unideb.hu

Computer Science BSc

curriculum – 2021

Debrecen
2025/2026.

COMPUTER SCIENCE BSC CURRICULUM

Mode:	Full-time training
Program Coordinator:	Dr. Márton Ispány (ispany.marton@inf.unideb.hu)
Mentor:	Dr. Péter Jeszenszky (jeszenszky.peter@inf.unideb.hu)

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:

Mathematics and Computer Science:		60 credits
Informatics:		90 credits
Compulsory topics:	54 credits	
Differentiated knowledge topics:	36 credits	
Professional Training:	12 credits	
Thesis work:		20 credits
Free choice:		10 credits
Total:		**180 credits**
Work and Fire Safety:		1 credit
Physical Education (2 semesters):		2 credits

Professional training/Internship requirements

Professional training is a practice which is completed at a competent training place. It lasts for at least 8 weeks and 320 work hours.

It is a must to complete Professional training subject to issue the absolutorium (pre-degree certificate).

https://inf.unideb.hu/en/professional-training

Student can apply for Professional training after completing prerequisite subjects. Academic and Examination Rules and Regulations of the University of Debrecen contains those subjects.

Faculty of Informatics annex to the Academic and Examination Rules and Regulations of the University of Debrecen contains the procedure of the professional training.

The Thesis

During the studies, Student must write a thesis. Writing a thesis is a diploma requirement.

Thesis subject is mandatory to complete. The prerequisites to register for the Thesis subject are the followings:

- chose a thesis topic by the deadline.

  (Together with the supervisor the candidate writes a work plan in the maximum of two pages. The work plan describes the aim of the work, areas of expertise and the scheduling of the work.)

- the chosen topic is approved by the Educational Committee
- at least 90 completed credits.

Final Exam / State Exam

a., Requirements for Final Exam

1. Complete all the 180 credits required by the curriculum of program specialisation to have the degree of BSc program
2. Carry out the internship
3. Write and submit the Diploma Thesis

b., Process of the Final Exam

The Final Exam consists of an oral part only and the purpose is to examine the coherence of the professional knowledge.

F. The average from the grades of the oral exam (rounded to a whole number) consists of an item of the Mathematical and computer sciences knowledge and an item of the Informatical sciences knowledge. If the grade for any item is failed, the grade is failed, and the final examination is failed.

D1. Thesis defence. During the defence the candidate has to sum up the Thesis in a short presentation then s/he answers the questions from the referee of the Thesis and the members of the Committee.

D2. The grade for the thesis, which is determined by the Final Examination Committee taking into account the grade proposed by the thesis assessor.

Calculation of the final examination grade (**ZV**): ZV = (F+D1+D2)/3

If the grade D2 is failed, the candidate will not be allowed to sit the final examination.

If any of the grades of F or D1 are unsatisfactory, the final exam is also unsatisfactory. Only the component graded as unsatisfactory must be retaken in the retake of the final examination.

Grade of Diploma:

Diploma grade: in the case of a successful final examination, it is determined based on the average of the following results:

a) **SZ**: average of the grades for the 'Thesis 2' subject, the grade for the examination of the thesis and the grades obtained for the defence of the thesis in the final examination, rounded to two decimal places
b) **F**: Average of the grades obtained in the final examination, rounded to a whole number
c) **T**: credit-weighted average to two decimal places of all compulsory and optional professional subjects completed during the course of training, except for the 'Thesis 2' subject weighted by credits, rounded to two decimal places.

Diploma grade = (SZ+F+T)/3

Based on the above average result, the qualification of the diploma is determined by the University of Debrecen's Academic and Examination Regulations, Section 31 (7).

The diploma shall be assessed based on the calculation of the grade average as follows:

outstanding	4,81-5,00
excellent	4,51-4,80
good	3,51-4,50
satisfactory	2,51-3,50
pass	2,00-2,50

Mathematics and Computer Science – needed 60 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INBPA0101-21 INBPA0101E INBPA0101G	Logic in computer science	6	2	2		E S		1	1
INBPA0102-17 INBPA0102E INBPA0102G	Discrete mathematics	6	2	2		PM		1	1
INBPA0103-17 INBPA0103E INBPA0103L	Computer aided mathematics and visualization	6	2		2	PM		1	1
INBPA0206-17 INBPA0206E INBPA0206G	Data structures and algorithms	6	2	2		E S	INBPA0101-21 INBPA0102-17	2	2
INBPA0207-21 INBPA0207E INBPA0207G	Calculus	6	2	2		PM		2	2
INBPA0313-17 INBPA0313E INBPA0313L	Applied statistics	6	2		2	E S	INBPA0207-21	1	3
INBPA0314-21 INBPA0314E INBPA0314G	Introduction to computer science	6	2	2		E S	INBPA0102-17	1	3
INBPA0417-21 INBPA0417G INBPA0417L	Applied mathematics	6		2	2	PM	INBPA0102-17	2	4
INBPA0418-21 INBPA0418E INBPA0418L	Foundations of artificial intelligence	6	2		2	E S	INBPA0101-21 INBPA0211-21	2	4
INBPA0419-17 INBPA0419E INBPA0419L	Foundations of computer security	6	2		2	E S	INBPA0211-21	2	4

Informatics (Compulsory topics) – needed 54 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INBPA0104-21 NBPA0104L	Introduction to programming	3			2	PM		1	1
INBPA0105-21 INBPA0105E INBPA0105L	Operating systems	6	2		2	E S		1	1
INBPA0208-17 INBPA0208E	Database systems	3	2			E	INBPA0101-21	2	2
INBPA0209-17 INBPA0209L	Database systems lab	3			2	PM	INBPA0101-21	2	2
INBPA0210-17 INBPA0210E INBPA0210L	Network architectures and protocols	6	2		2	E S	INBPA0104-21 INBPA0105-21	2	2
INBPA0211-21 INBPA0211E INBPA0211L	High-level programming languages 1	6	2		2	E S	INBPA0104-21	2	2

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INBPA0315-21 INBPA0315G INBPA0315L	High-level programming languages 2	6		2	2	PM	INBPA0211-21	1	3
INBPA0316-17 INBPA0316E INBPA0316L	Web technologies	6	2		2	E S	INBPA0104-21	1	3
INBPA0420-21 INBPA0420E INBPA0420L	Software engineering and technologies	6	2		2	PM	INBPA0315-21	2	4
INBPA0521-17 INBPA0521L	Software development methodologies	3			2	PM	INBPA0211-21	1	5
INBPA0522-21 INBPA0522G INBPA0522L	Web application development	6		2	2	PM	INBPA0315-21 INBPA0316-17	1	5

Thesis work – needed 20 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	gyakorlat					
				tant.	labor				
INBPA0523-21 INBPA0523X	Thesis 1	5				PM		1	5
INBPA0623-21 INBPA0623X	Thesis 2	15				PM		2	6

Informatics (Differentiated knowledge topics) – needed 36 credits

Code	Subject name	Credit	Type and number			Assessment	Prerequisites	Period	Semester
			lec.	practice					
				sem.	lab				
INBPA9924-17 INBPA9924L	3D printing and modeling	3			2	PM	INBPA0103-17	2	2
INBPA9925-17 INBPA9925L	Cloud computing	3			2	PM	INBPA0105-21	2	2
INBPA9926-17 INBPA9926L	Basics of GIS	3			2	PM	INBPA0103-17	2	2
INBPA9944-17 INBPA9944L	Graphics Systems	3			2	PM	INBPA0103-17	2	2
INBPA9927-17 INBPA9927L	Bioinformatics	3			2	PM	INBPA0206-17	1	3
INBPA9928-21 INBPA9928E	E-Sport	3	2			E	INBPA0211-21	1	3
INBPA9929-17 INBPA9929E INBPA9929L	Operation of infocommunication systems	6	2		2	PM	INBPA0210-17	1	3
INBPA9930-17 INBPA9930L	Image processing in practice	3			2	PM	INBPA0211-21	1	3
INBPA9931-17 INBPA9931L	High-level programming languages 3	3			2	PM	INBPA0211-21	1	3

Code	Subject name	Cre-dit	Type and number			Asses-ment	Prerequisites	Period	Semes-ter
			lec.	practice					
				sem.	lab				
INBPA9942-17 INBPA9942L	Scripting Languages	3			2	PM	INBPA0211-21	1	3
INBPA9947-17 INBPA9947L	Introduction to Natural Language Processing	3			2	PM	INBPA0211-21	1	3
INBPA9932-17 INBPA9932L	Introduction to 3D game development	3			2	PM	INBPA0103-17 INBPA0315-21	2	4
INBPA9933-17 INBPA9933L	Compilers	3			2	PM	INBPA0211-21 INBPA0314-21	2	4
INBPA9934-17 INBPA9934L	Machine learning in practice	3			2	PM	INBPA0211-21 INBPA0313-17	2	4
INBPA9935-17 INBPA9935L	Advanced database knowledge	3			2	PM	INBPA0209-17	2	4
INBPA9936-17 INBPA9936L	NoSQL databases	3			2	PM	INBPA0209-17 INBPA0315-21	2	4
INBPA9943-17 INBPA9943E	Fundamentals of Information and Coding Theory	3	2			E	INBPA313-17	2	4
INBPA9937-17 INBPA9937L	Mobile application development	3			2	PM	INBPA0420-21	1	5
INBPA9938-17 INBPA9938L	Computer Statistics	3			2	PM	INBPA0313-17	1	5
INBPA9939-17 INBPA9939L	Software testing	3			2	PM	INBPA0420-21	1	5
INBPA9940-17 INBPA9940L	Advanced data security	3			2	PM	INBPA0419-17 INBPA0522-21	2	6
INBPA9941-17 INBPA9941L	Advanced web technologies	3			2	PM	INBPA0522-21	2	6
INBPA9949-17 INBPA9949L	Virtual reality and its applications	3			2	PM	INBPA0103-17	I	
INBPA9950-17 INBPA9950L	Ethical hacking I.	3			2	PM	INBPA0211-21	I	
INBPA9951-17 INBPA9951E	Blockhain technology	3	2			E		I	
INBPA9955-17 INBPA9955L	Introduction to reinforcement learning	3			2	PM		I	
INBPA9958-17 INBPA9958L	Introduction to the AWS Cloud	3			2	PM		I	
INBPA9959-21 INBPA9959L	Network and System Security	3			2	PM	INBPA0105-21	I	
INBPA9960-21 INBPA9960L	Ethical hacking 2.	3			2	PM	INBPA9950-17	I	
INBPA9961-21 INBPA9961L	DevSecOps	3			2	PM	INBPA0105-21	I	
INBPA9997-21 INBPA9997G	Professional Training	12				PM	INBPA0315-21 INBPA0208-17 INBPA0209-17	I	6

Free choice – needed 10 credits

Code	Subject name	Cre-dit	Type and number			Asses-ment	Prerequisites	Period	Semes-ter
			lec.	practice					
				sem.	lab				

* "Free choice" - Professional electives offered by the Faculty of Informatics and institutional electives offered by other faculties of the University of Debrecen.

Work and Fire Safety and Physical Education – needed 3 credits

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

Code	Subject name	Cre-dit	Type and number			Asses-ment	Prerequisites	Period	Semes-ter
			lec.	practice					
				sem.	lab				
	Work and Fire Safety	1				PM			1
	Physical Education	1				PM			
	Physical Education	1				PM			

Exam types:
E exam
S signature
PM practical mark