

Computer Science for Autonomous Systems MSc (2022)

Spring semester

Clarifications regarding the curriculum

Courses marked with two asterisks (**) in the curriculum are also offered in the Computer Science BSc programme under different subject codes. The following rules apply to such courses:

- If you completed a subject during the Computer Science BSc programme and had it counted into your degree requirements (i.e. included in the 180 credits required for graduation), we will accept its completion. However, you may not register for the same course again in the MSc programme, nor may it be recognised through a credit transfer procedure.
- If such a subject is a compulsory subject in the MSc programme, it will automatically be regarded as completed for the purposes of graduation. In this case, you must take another subject from the compulsory elective subjects offered within your specialisation, in the same number of credits.
- If you completed the course during your BSc studies but did **not** have it counted in the 180 credits required for graduation (i.e. it was not listed in your graduation application either as a compulsory elective subject or as a free elective subject, and it was not one of your compulsory subjects), you may transfer it to the MSc programme through a [credit transfer procedure](#). If the subject is classified as a compulsory or compulsory elective subject within the programme, it will be counted towards the corresponding category of the degree programme.

Preliminary Credit Assessment at Admission

Students who, during the preliminary credit assessment at the time of admission or as part of the institutional admission procedure, were required by an official decision to complete additional credits must complete the missing supplementary knowledge **in parallel with their Master's studies, within two semesters of admission**.

The courses required to fulfil these additional credit requirements are determined by the **programme director, Dr. Sándor Fridli or Dr. Zsolt Németh**.

Please note that these courses **do not count towards the 120 credits required for completing the Master's programme**. Students must complete these additional courses **in addition to the 120 credits** required for their degree.

Information Regarding Internship

In accordance with Annex 3 of Decree No. 15/2006 (IV. 3.) of the Ministry of Education, students enrolled in the Computer Science for Autonomous Systems MSc programme are required to complete a six-week internship.

The internship does not carry any credits; however, its successful completion is a mandatory graduation requirement and a prerequisite for obtaining the absolutory (pre-degree certificate).

<https://www.inf.elte.hu/en/internship-bsc-msc>

<https://www.inf.elte.hu/en/spec-info-computer-science-msc>

If a student has completed two laboratory courses with a total value of 10 credits (AUS Lab I & II.), they may apply for recognition of the internship requirement by submitting the following request in Neptun: IK - Accepting Laboratory Courses as Internship. If the request is approved, the completed laboratory courses may be recognised as an accomplished mandatory internship requirement. More details in the Essential Guide (applies also this training programme): [Accomplishing the internship with laboratory subjects in MSc in Computer Science](#)

Also by completing [Innovation Laboratory](#), mandatory internship required may be recognised.

***Thesis consultation

<https://www.inf.elte.hu/en/guidelines-thesis-final-examination-msc>

Compulsory subjects

Code	Subject	Lecture (L)	Practice (Pr)	Labor	Consultation	Requirement	Credit	Semester	Subject requirement	1st Semester	2nd Semester	3rd Semester	4th Semester
ELTE-OI-AI	Start wAltless - Introduction to the use of Artificial Intelligence in Higher Education						0	1		online course			
IPM-22AUTRMG	Research methodology L+Pr.	1	2	0	2	XPG	5	1		1+2+0+2			
IPM-22AUTAIPAEG	Deep Reinforcement Learning L+Pr.*	2	2	0	2	XPG	6	1		2+2+0+2			
IPM-22AUTDAAE	Design and Analysis of Algorithms L.*	2	0	0	2	E	4	1		2+0+0+2			
IPM-22AUTIDSEG	Introduction to Data Science L+Pr.	2	0	2	2	XE	6	1		2+0+2+2			
IPM-22AUTCVEG	3D Computer Vision L+Pr.*	2	0	2	2	XE	6	2			2+0+2+2		
IPM-22AUTISPE	Image and Signal Processing L.*	2	0	0	1	E	3	2	IPM-22AUTISPG (weak)		2+0+0+1		
IPM-22AUTISPG	Image and Signal Processing Pr.*	0	0	2	1	PG	3	2			0+0+2+1		
IPM-22AUTIDSEG	Introduction to Vehicles and Sensors L.+Pr.*	2	1	0	1	XE	4	2			2+1+0+1		
IPM-22AUTNMEG	Numerical Methods for Optimization L+Pr.	2	0	2	2	PG	6	3				2+0+2+2	
IPM-22fPRG	Internship						0	2-4					240 hours
	Compulsory subjects credits						43			21	16	6	

Compulsory elective subjects

Code	Subject	Lecture (L)	Practice (Pr)	Labor	Consultation	Requirement	Credit	Semester	Subject requirement	1st Semester	2nd Semester	3rd Semester	4th Semester
IPM-22AUTASTE	Advanced Software Technology L.	2	0	0	2	E	4	1		2+0+0+2			
IPM-22AUTAUSLAB1	AUS Lab I.	0	0	3	2	PG	5	1		0+0+3+2			
IPM-22AUTDAAG	Design and analysis of algorithms Pr.	0	2	0	1	PG	3	1		0+2+0+1			
IPM-22AUTDNDEG	Deep Network Development*	2	0	2	2	XE	6	1		2+0+2+2			
IPM-22AUTPREPG	Preparation course for master studies and developing learning skills Pr.*	0	3	0	0	PG	2	1		0+3+0+0			
IPM-22AUTTAMEG	Topics in Applied Mathematics L+Pr.	2	2	0	1	XPG	5	1		2+2+0+1			
IPM-22AUTSSFEG	3D Sensing and Sensor Fusion L.+Pr.*	2	2	0	2	XE	6	2			2+2+0+2		
IPM-22AUTAAE	Advanced Algorithms L.	2	0	0	1	E	3	2	IPM-22AUTAAG (weak)		2+0+0+1		
IPM-22AUTAAG	Advanced Algorithms Pr.	0	2	0	1	PG	3	2			0+2+0+1		
IPM-22AUTADLEG	Advanced Deep Network Development L+Pr.*	2	2	0	2	XE	6	2	IPM-22AUTDNDEG		2+2+0+2		
IPM-22AUTAUSLAB2	AUS Lab II	0	0	3	2	PG	5	2			0+0+3+2		
IPM-22AUTPHFTG	Human Factors in Traffic Environment Pr.*	0	2	0	0	PG	2	2			0+2+0+0		
IPM-22AUTIVPEG	Image and Video Processing L.+Pr.*	2	2	0	2	XE	6	3				2+2+0+2	
IPM-22AUTLFADE	Legal Framework for Autonomous Driving L.	2	0	0	0	E	2	2			2+0+0+0		
IPM-22AUTPME	Project Management L.	2	0	0	0	E	2	2			2+0+0+0		
IPM-22AUTSCTE	System and Control Theory L.	2	0	0	1	E	3	2	IPM-22AUTSCTG (weak)		2+0+0+1		
IPM-22AUTSCTG	System and Control Theory Pr.	0	0	2	1	PG	3	2			0+0+2+1		

IPM-23AUTi3DCPAEG	3D point cloud processing and analysis	2	2	0	2	XE	6	2			2+2+0+2		
IPM-24AUTMLEG	Machine learning L+Pr.	2	0	2	2	XE	6	2			2+0+2+2		
IPM-24AUTPAIEG	Principles of artificial intelligence	2	0	2	2	XE	6	2			2+0+2+2		
IPM-25AUTG3DCVEG	Geometry of 3D Computer Vision	2	2	0	2	XE	6	2				2+2+0+2	
IPM-24AUTIMREG	Intelligent Mobile Robots	2	2	0	2	XPG	6	3				2+2+0+2	
IPM-22AUTCGE	Computer graphics L.**	2	0	0	1	E	3	3	IPM-22AUTCGG (weak)			2+0+0+1	
IPM-22AUTCGG	Computer graphics Pr.**	0	2	0	1	PG	3	3				0+2+0+1	
IPM-22AUTERTSEG	Embedded and Real-Time Systems L+Pr.*	2	0	2	2	XE	6	3				2+0+2+2	
IPM-22AUTSQTE	Software quality and testing L.	2	0	0	1	E	3	3	IPM-22AUTSQTG (weak)			2+0+0+1	
IPM-22AUTSQTG	Software quality and testing Pr.	0	0	2	1	PG	3	3				0+0+2+1	
IPM-22AUTTHESIS	Thesis consultation***		1		0	PG	30	4					signature
	Elective credits						6	3				6+0+0	
	Compulsory elective credits						41			9	14	18	
IPM-24AUTERASMUS	Erasmus mobility						max 24 credits	3				max 24 credits	
	Summa credit in semester									30	30	30	30
	Summa credit						120						

I&E modul													
Code	Subject	Lecture (L)	Practice (Pr)	Labor	Consultation	Requirement	Credit	Semester	Subject requirement	1st Semester	2nd Semester	3rd Semester	4th Semester
IPM-22fi&EBEG	I&E Basics	2	2	0	2	XPG	6	1		2+2+0+2			
IPM-22fi&EBDL1G	Business Development Lab I.	0	2	0	2	PG	4	1		0+2+0+2			
IPM-22fi&EBDL2G	Business Development Lab II.	0	2	0	2	PG	4	2			0+2+0+2		
IPM-22fi&EIAOEEG	Innosocial aspects of the entrepreneurship	2	2	0	2	XPG	6	2			2+2+0+2		
IPM-22fi&ETSSG	Thematic Summer Schools with I&E project	1	1	0	2	XPG	4	2			1+1+0+2		
IPM-22fi&ESTEG	I&E Study	2	2	0	2	XPG	6	3				2+2+0+2	
	Summa credit in semester									30	30	30	30
	Summa credit						120						

PG: Practical Grade E: Exam XPG: Lecture+Practice with Practical Grade XE: Lecture+Practice with Exam

- Az EIT-es hallgatók számára I&E modul mellett a *-gal megjeölt tárgyak elvégzése kötelező.
- Az EIT-s hallgatók az utolsó félévükben végzik a szakmai gyakorlatot a diplomamunka készítésével párhuzamosan

- EIT students must complete the Innovation&Entrepreneurshop (I&E) module and required to complete all subjects indicated by asterisk (*) in the sample curriculum of the specialization.
- EIT students fulfill the requirements of the internship and complete their thesis work (parallelly), in the last semester of their academic studies.