

**PTE-TTK CS BSc curriculum 2020**

ENGLISH COURSE TITLE	COURSE TYPE / EXAM	SEMESTER (H-WEEK)/(H-SEMESTER)						CREDIT	PREREQUISITE	INSTRUCTOR-IN-CHARGE
		1	2	3	4	5	6			
<b>1. Obligatory courses</b>										
Elementary linear algebra	Pres+Prac/Coll.	2+2						4		Dr. Frigyik Béla András
Probability and statistics	Pres+Prac/Coll.			2+1				3		Dr. Figyik B. András
Mathematical logics	Prac/Pract	0+2						2		Bodor András
Numerical methods I.	Pres+Prac/Pract				2+2			5	Elementary linear algebra	Dr. Király Balázs
Numerical methods II.	Prac/Pract					0+2		2	Numerical methods I.	Dr. Király Balázs
Operations research	Prac/Pracj					0+3		3	Elementary linear algebra	Dr. Király Balázs
Discrete mathematics I.	Pres+Prac/Coll.	2+2						5		Dr. Szabó Sándor
Discrete mathematics II.	Pres+Prac/Coll.		2+2					5		Dr. Jenei Sándor
Basics of computer science	Pres+Prac/Pract			2+2				5	Discrete mathematics I.	Dr. Jenei Sándor
Elementary programming	Prac/Pract	0+4						4		Dr. Zentai Norbert
Programming I.	Prac/Pract	0+4						5		Dr. Gimesi László
Programming II.	Prac/Pract		0+4					5	Programming I.	Dr. Gimesi László
Compilers and assemblers	Prac/Pract					0+2		2		Dr. Gimesi László
Algorithms, data structures	Pres+Prac/Coll.		2+2					5		Dr. Jenei Sándor
Formal languages and automata	Pres+Prac / Pract	2+2						5		Dr. Jenei Sándor
Distributed systems, parallel programming	Prac/Pract					0+3		3		Bodor András
Relational databases	Pres+Prac/Coll.			2+2				5		Dr. Laczkó József
Methodology of programming I.	Pres+Prac/Pract		2+2					5	Programming I.	Dr. Zentai Norbert
System engineering	Pres+Prac/Coll.			2+2				5		Dr. Pauler Gábor
Professional communication	Pres/Pract				2+0			3		Dr. Bugya Titusz
Operating systems	Pres+Prac/Coll.						2+2	5		Dr. Almási Gábor
Computer architectures	Pres/Coll.	2+0						2		Dr. Almási Gábor
Computer networks	Pres/Coll.		3+0					5		Dr. Mechler Mátyás Illés
Information and data security	Pres/Coll.						3+0	3		Dr. Zentai Norbert
Operation of IT systems	Prac/Pract				0+2			3		Dr. Zentai Norbert

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Introduction to Artificial Intelligence	Pres/Coll.				2+0			2		Dr. Szabó Sándor
Control technology	Pres+Prac/Coll.						1+2	5		Dr. Laczkó József
<b>1.1. Modular elective courses (Completing one of the courses is compulsory)</b>								<b>10</b>		
Calculus I.	Pres+Prac/Coll.	2+2						5		Dr. Pap Margit
Calculus II.	Pres+Prac/Coll.		2+2					5	Calculus I.	Dr. Pap Margit
Analysis I.	Pres+Prac/Coll.	3+2						5		Dr. Pap Margit
Analysis II.	Pres+Prac/Coll.		3+2					5	Analysis I.	Dr. Pap Margit
<b>1.2. Mandatory courses on Software Development Specialization</b>								<b>36</b>		
Web programming I.	Pres+Prac/Prac.			2+2				5	Methodology of programming I.	Rébay Viktor
State-of-art database systems	Pres+Prac/Prac.				2+2			5		Dr. Pauler Gábor
Methodology of programming II.	Pres+Prac/Prac.			2+2				5	Methodology of programming I.	Dr. Zentai Norbert
Software development technologies	Pres+Prac/Prac.				1+3			5	Methodology of programming I.	Kiss-Vincze Tamás
Working with SAP ERP 6.0 MM-PP-SD modules	Lec+Prac/Coll.						2+2	3		Dr. Pauler Gábor
<b>1.2.1 Elective courses selected (see below)</b>								<b>13</b>		
<b>1.3. Obligatory courses on GIS Specialization</b>								<b>36</b>		
Introduction to Geography	Lec+Prac/Coll.						1+2	4		Dr. Nagyváradi László
Analog Cartography	Prac/Prac.				0+2			3		Dr. Nagyváradi László
Digital Cartography	Prac/Prac.				0+2			3		Dr. Gyenizse Péter
Introduction to GIS II.	Prac/Prac.				0+3			4		Dr. Kovács István Péter
Data Acquisition Methods	Prac/Prac.						0+2	4		Dr. Ronczyk Levente
Introduction to ArcGIS	Prac/Prac.						0+3	4		Dr. Pirkhoffer Ervin
GIS Software I.	Prac/Prac.				0+2			4		Dr. Bugya Titusz
GIS Software II.	Prac/Prac.						0+2	4		Dr. Pirkhoffer Ervin
Web GIS	Prac/Prac.						0+3	6		Dr. Bugya Titusz
<b>2. Elective courses for Software Development Specialization</b>								<b>13</b>		
Mathematical analysis III.	Pres+Prac/Coll.			2+2				4	Analysis II.	Dr. Pap Margit

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Complex series	Pres+Prac/Coll.		2+1					5	Analysis I.	Dr. Pap Margit
Multivariate analysis	Pres+Prac/Coll.			3+2				5	Analysis II.	Dr. Pap Margit
Complex functions	Pres+Prac/Coll.				2+2			4	Multivariate analysis	Dr. Pap Margit
Mobile technology	Prac/Pracj.					0+4		6		Dr. Zentai Norbert
Web programming II.	Pres+Prac/Prac.				2+2			5	Web programming I.	Rébay Viktor
Basics of desktop publishing	Prac/Prac.					0+3		2		Rébay Viktor
Biorobotics	Pres+Prac/Coll.					2+1		4		Dr. Laczkó József
Microcontroller programming	Pres+Prac/Prac.					0+4		4		Dr. Almási Gábor
MATLAB I.	Prac/Prac.				0+3			3		Dr. Mechler Mátyás Illés
MATLAB II.	Prac/Prac.					0+2		2		Dr. Mechler Mátyás Illés
CAD I	Prac/Prac.					0+2		2		Dr. Polónyi Gyula
CAD II	Prac/Prac.						0+2	2		Dr. Polónyi Gyula
LabView basics	Prac/Prac.				0+2			3		Dr. Márton Zsuzsa
LabView II	Prac/Prac.					0+2		3		Dr. Márton Zsuzsa
Introduction into Maxima	Prac/Prac.				0+2			2		Dr. Mechler Mátyás Illés
Visualization techniques	Prac/Prac.					0+2		3		Dr. Almási Gábor
Frontend frameworks	Prac/Prac				0 + 2			3	Programming methodology I.	Rébay Viktor
Computer graphics	Prac/Prac.				0+2			2		Dr. Gimesi László
Neural networks	Prac/Prac.				0+2			2		Dr. Gimesi László
Advanced Python programming	Prac/Prac				0+2			3	Programming I.	Bodor András
Basics of C#	Prac/Prac				0+2			3	Programming methodology I.	Dr. Zentai Norbert
Computer game development	Prac/Prac.						0+2	2		Kiss-Vincze Tamás
Document Preparation with LaTeX	Prac/Prac.				0+2			3		Dr. Mechler Mátyás Illés
Scientific programming in Python	Prac/Prac.						0+3	4	Elementary programming	Bodor András
<b>3. Facultative courses</b>								<b>8</b>		
C# Entity framework	Prac/Prac.				0+3			4		Fajnár Patrik
Vaadin	Prac/Prac.					0+3		4		Szűcs Bálint Attila

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<b>4. Thesis</b>								<b>20</b>		
Thesis consultation I.	Prac/Prac.					X		10		
Thesis consultation II.	Prac/Prac.						X	10		
<b>5. Professional practice</b>								<b>0</b>		
<b>6. 180 credits in compliance with education laws</b>								<b>74</b>		