

**Academic year 2023-2024**  
**Bachelor studies in Computer Science**

**Year 1**

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**Semester 1**

*Compulsory courses*

CS1101	<b>Data Structures</b> Course hours/week: 2 Seminary hours/week: 1 Laboratory hours/week: 1 Evaluation method: Exam	6 ECTS
CS1102	<b>Computer Architecture and Operating Systems</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS1103	<b>Logics for Computer Science</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: Exam	6 ECTS
CS1104	<b>Mathematics - Differential and Integral Calculus</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: Exam	5 ECTS
CS1105	<b>Introduction to Programming</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: During the semester	4 ECTS
CS1106	<b>English Language I</b> Course hours/week: - Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: During the semester	4 ECTS
CS1107	<b>Physical Education</b> Course hours/week: - Seminary hours/week: 1 Laboratory hours/week: - Evaluation method: Oral examination	1 ECTS

*Supplementary courses*

CS1108F	<b>Competitive Programming</b>	3 ECTS
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Course hours/week: -  
Seminary hours/week: 3  
Laboratory hours/week: -  
Evaluation method: During the semester

CS1109F	<b>Effective Learning Strategies</b> Course hours/week: 1 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: During the semester	3 ECTS
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## Semester 2

### *Compulsory courses*

CS1201	<b>Object-Oriented Programming</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	6 ECTS
CS1202	<b>Operating Systems</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	6 ECTS
CS1203	<b>Algebraic Foundations of Computer Science</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: Exam	5 ECTS
CS1204	<b>Probabilities and Statistics</b> Course hours/week: 2 Seminary hours/week: 1 Laboratory hours/week: 1 Evaluation method: During the semester	4 ECTS
CS1205	<b>Algorithms Design</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: Exam	5 ECTS
CS1206	<b>English Language II</b> Course hours/week: - Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: During the semester	4 ECTS
CS1207	<b>Physical Education</b> Course hours/week: - Seminary hours/week: 1	1 ECTS

Laboratory hours/week: -  
Evaluation method: Oral examination

***Supplementary courses***

CS1208F	<b>Competitive Programming</b> Course hours/week: - Seminary hours/week: 3 Laboratory hours/week: - Evaluation method: During the semester	3 ECTS
CS1209F	<b>Ethics and Academic Integrity</b> Course hours/week: 1 Seminary hours/week: - Laboratory hours/week: - Evaluation method: During the semester	3 ECTS
CS1210F	<b>Introduction to Axiomatic Set Theory and Applications in Computer Science</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: During the semester	3 ECTS

**Academic year 2023-2024**  
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**Year 2**

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**Semester 1**

*Compulsory courses*

CS2101	<b>Computer Networks</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: During the semester	6 ECTS
CS2102	<b>Databases</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	6 ECTS
CS2103	<b>Formal Languages, Automata and Compilers</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS2104	<b>Graph Algorithms</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: Exam	5 ECTS
CS2105	<b>English Language III</b> Course hours/week: - Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: During the semester	4 ECTS
CS2106	<b>Physical Education</b> Course hours/week: - Seminary hours/week: 1 Laboratory hours/week: - Evaluation method: Oral examination	1 ECTS

*Optional courses*

CS2107O1	<b>Computability, Decidability and Complexity</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: During the semester	4 ECTS
CS2107O2	<b>Principles of Programming Languages</b>	4 ECTS

Course hours/week: 2  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: During the semester

CS2107O3      **Genetic Algorithms**      4 ECTS

Course hours/week: 2  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: During the semester

CS2107O4      **Rust Programming**      4 ECTS

Course hours/week: 2  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: During the semester

*Supplementary courses*

CS2108F      **Competitive Programming**      3 ECTS

Course hours/week: -  
Seminary hours/week: 3  
Laboratory hours/week: -  
Evaluation method: During the semester

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**Semester 2**

*Compulsory courses*

CS2201      **Web Technologies**      6 ECTS

Course hours/week: 2  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: Exam

CS2202      **Advanced Programming**      5 ECTS

Course hours/week: 2  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: Exam

CS2203      **Software Engineering**      6 ECTS

Course hours/week: 2  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: Exam

CS2204      **DBMS Practice**      4 ECTS

Course hours/week: 1  
Seminary hours/week: -  
Laboratory hours/week: 2  
Evaluation method: During the semester

CS2205      **English Language IV**      4 ECTS

Course hours/week: -  
Seminary hours/week: 2  
Laboratory hours/week: -  
Evaluation method: During the semester

CS2206	<b>Physical Education</b> Course hours/week: - Seminary hours/week: 1 Laboratory hours/week: - Evaluation method: Oral examination	1 ECTS
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***Optional courses: 1 out of 4***

CS2207O1	<b>Functional Programming</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS2207O2	<b>Introduction to Cryptography</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS2207O3	<b>Entrepreneurship and Innovation in IT</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS2207O4	<b>Embedded Systems</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS

***Supplementary courses***

CS2208F	<b>Competitive Programming</b> Course hours/week: - Seminary hours/week: 3 Laboratory hours/week: - Evaluation method: During the semester	3 ECTS
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**Academic year 2023-2024**  
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**Year 3**

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**Semester 1**

*Compulsory courses*

CS3101	<b>Machine Learning</b> Course hours/week: 2 Seminary hours/week: 2 Laboratory hours/week: - Evaluation method: Exam	6 ECTS
CS3102	<b>Information Security</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS3103	<b>Artificial Intelligence</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
CS3104	<b>Python Programming</b> Course hours/week: 1 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: During the semester	4 ECTS

*Optional courses*

CS3105O1	<b>Introduction to .NET</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS
CS3105O2	<b>Physical Systems Development Using Microprocessors</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS
CS3105O3	<b>Neural Networks</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS
CS3105O4	<b>3D Computer Animation: Fundamental Algorithms and Techniques</b>	5 ECTS

Course hours/week: 4  
Seminary hours/week: -  
Laboratory hours/week: 4  
Evaluation method: Exam

***Optional courses***

CS3106O1	<b>Probabilistic Programming and Modeling</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS
CS3106O2	<b>Introduction to Mixed Reality</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS
CS3106O3	<b>Special Chapters in Operating Systems</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS
CS3106O4	<b>Multiprocessor Programming Techniques</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	5 ECTS

***Supplementary courses***

CS3107F	<b>Competitive Programming</b> Course hours/week: - Seminary hours/week: 3 Laboratory hours/week: - Evaluation method: During the semester	3 ECTS
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**Semester 2**

***Compulsory courses***

CS3201	<b>Numerical Calculus</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: During the semester	4 ECTS
CS3202	<b>Computer Graphics and Computational Geometry</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: During the semester	4 ECTS



CS3203	<b>Methodology for Diploma Project Development</b> Course hours/week: - Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: During the semester	5 ECTS
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CS3204	<b>Internship</b> Course hours/week: - Seminary hours/week: - Laboratory hours/week: 1 Evaluation method: During the semester	4 ECTS
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***Optional courses***

CS3205O1	<b>Rule-based Programming</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
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CS3205O2	<b>Programming Techniques on the Mobile Platforms</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
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CS3205O3	<b>Computational Aspects on the Number Theory</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
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CS3205O4	<b>Game Design</b> Course hours/week: 2 Seminary hours/week: - Laboratory hours/week: 2 Evaluation method: Exam	5 ECTS
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***Optional courses***

CS3206O1	<b>Psychology of the Professional Communication in IT Industry</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	4 ECTS
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CS3206O2	<b>Cloud Computing</b> Course hours/week: 4 Seminary hours/week: - Laboratory hours/week: 4 Evaluation method: Exam	4 ECTS
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CS3206O3	<b>Human-Computer Interaction</b> Course hours/week: 4 Seminary hours/week: -	4 ECTS
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Laboratory hours/week: 4  
Evaluation method: Exam

CS3206O4	<b>Social Media Networks Analysis</b>	4 ECTS
	Course hours/week: 4	
	Seminary hours/week: -	
	Laboratory hours/week: 4	
	Evaluation method: Exam	

***Optional courses***

CS3207O1	<b>Petri Nets and Applications</b>	4 ECTS
	Course hours/week: 4	
	Seminary hours/week: -	
	Laboratory hours/week: 4	
	Evaluation method: Exam	

CS3207O2	<b>Smart Cards and Their Applications</b>	4 ECTS
	Course hours/week: 4	
	Seminary hours/week: -	
	Laboratory hours/week: 4	
	Evaluation method: Exam	

CS3207O3	<b>Automotive-specific Software Engineering</b>	4 ECTS
	Course hours/week: 4	
	Seminary hours/week: -	
	Laboratory hours/week: 4	
	Evaluation method: Exam	

CS3207O4	<b>Introduction to Internet of Things</b>	4 ECTS
	Course hours/week: 4	
	Seminary hours/week: -	
	Laboratory hours/week: 4	
	Evaluation method: Exam	

***Supplementary courses***

CS3208F	<b>Competitive Programming</b>	3 ECTS
	Course hours/week: -	
	Seminary hours/week: 3	
	Laboratory hours/week: -	
	Evaluation method: During the semester	