

**Academic year 2019-2020**  
**Bachelor studies in Computer Science**

**Year 1 (Series 2019-2022)**

**Semester 1**

CS1101	<b>Data Structures</b> C: 2    S: 1    L: 1    Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	6 ECTS
CS1102	<b>Computer Architecture and Operating Systems</b> C: 2    S:        L: 2    Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	5 ECTS
CS1103	<b>Logics for Computer Science</b> C: 2    S: 2    L:        Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	6 ECTS
CS1104	<b>Mathematics</b> C: 2    S: 2    L:        Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	5 ECTS
CS1105	<b>Practice - Introduction to Programming</b> C: 1    S:        L: 2    Ex: EVP <a href="#">Course webpage</a>	4 ECTS
CS1106	<b>English Language I</b> C:        S: 2    L:        Ex: EVP <a href="#">Course description</a>	4 ECTS

*Supplementary courses*

CS1113F	<b>Competitive Programming I</b> C: 1    S: 3    L:        Ex: EVP	3 ECTS
CS1114F	<b>Physical Education</b> C:        S: 1    L:        Ex: EVP	1 ECTS
	<b>Educational Psychology</b> C: 2    S: 2    L:        Ex: E	5 ECTS

**Semester 2**

CS1207	<b>Object - Oriented Programming</b> C: 2    S:        L: 2    Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	6 ECTS
CS1208	<b>Operating Systems</b> C: 2    S:        L: 2    Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	6 ECTS

CS1209	<b>Algebraic Foundations of Computer Science</b> C: 2 S: 2 L: Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	5 ECTS
CS1210	<b>Probabilities and Statistics</b> C: 2 S: 1 L: 1 Ex: EVP <a href="#">Course description</a> <a href="#">Course webpage</a>	4 ECTS
CS1211	<b>Algorithms Design</b> C: 2 S: 2 L: Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	5 ECTS
CS1212	<b>English Language II</b> C: S: 2 L: Ex: EVP <a href="#">Course description</a>	4 ECTS

### *Supplementary courses*

CS1215F	<b>Competitive Programming II</b> C: 1 S: 3 L: Ex: EVP	3 ECTS
CS1216F	<b>Physical Education</b> C: S: 1 L: Ex: EVP	1 ECTS
CS1117F	<b>Ethics and academic integrity</b> C: 1 S: L: Ex: EVP <a href="#">Course description</a>	3 ECTS
	<b>Pedagogy I (Foundations of pedagogy + Evaluation Theory and methodology)</b> C: 2 S: 2 L: Ex: E	5 ECTS

## **Year 2 (Series 2018-2021)**

### **Semester 1**

CS2101	<b>Computer Networks</b> C: 2 S: L: 2 Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	6 ECTS
CS2102	<b>Databases</b> C: 2 S: L: 2 Ex: E <a href="#">Course description</a> <a href="#">Course webpage</a>	6 ECTS
CS2103	<b>Formal Languages, Automata and Compilers</b> C: 2 S: L: 2 Ex: E <a href="#">Course description</a>	5 ECTS
CS2104	<b>Graph Algorithms</b> C: 2 S: 2 L: Ex: E <a href="#">Course webpage</a>	5 ECTS

**Optional course 1** 4 ECTS  
C: 2 S: L: 2 Ex: EVP

CS2105O1 *Computability, Decidability and Complexity*  
[Course description](#)

CS2105O2 *Principles of Programming Languages*  
[Course description](#)

CS2105O3 *Genetic Algorithms*

CS2105O4 *Continuous Models and MATLAB*

CS2106 **English Language III** 4 ECTS  
C: S: 2 L: Ex: EVP  
[Course description](#)

### *Supplementary courses*

CS2113F **Competitive Programming III** 3 ECTS  
C: 1 S: 3 L: Ex: EVP

CS2114F **Physical Education** 1 ECTS  
C: S: 1 L: Ex: EVP

CS2115F **Industry Training I** 3 ECTS  
C: S: L: 2 Ex: EVP

**Pedagogy II (Instruction theory and methodology + Evaluation theory and methodology)** 5 ECTS  
C: 2 S: 2 L: Ex: E

### **Semester 2**

CS2207 **WEB Technologies** 6 ECTS  
C: 2 S: L: 2 Ex: E  
[Course webpage](#)

CS2208 **Advanced Programming** 5 ECTS  
C: 2 S: L: 2 Ex: E  
[Course description](#)

CS2209 **Software Engineering** 6 ECTS  
C: 2 S: L: 2 Ex: E  
[Course description](#) [Course webpage](#)

CS2210 **DBMS Practice** 4 ECTS  
C: 1 S: L: 2 Ex: EVP  
[Course description](#) [Course webpage](#)

**Optional course 2** 5 ECTS  
C: 2 S: L: 2 Ex: E

CS2211O1 *Functional Programming*  
[Course webpage](#)

CS221103 *Introduction to Cryptography*  
[Course description](#)    [Course webpage](#)

CS221104 *Entrepreneurship and Innovation in IT*

CS221105 *Embedded systems*  
[Course description](#)    [Course webpage](#)

CS2212    **English Language IV**    4 ECTS  
C:        S: 2        L:        Ex: EVP  
[Course description](#)

*Supplementary courses*

CS2213F    **Competitive Programming IV**    3 ECTS  
C: 1        S: 3        L:        Ex: EVP

CS2214F    **Physical Education**    1 ECTS  
C:        S: 1        L:        Ex: EVP

**Teaching Techniques for Computer Science**    5 ECTS  
C: 2        S: 2        L:        Ex: E

**Year 3 (Series 2017-2020)**

**Semester 1**

CS3101    **Machine Learning**    6 ECTS  
C: 2        S: 2        L:        Ex: E  
[Course description](#)

CS3102    **Information Security**    5 ECTS  
C: 2        S:        L: 2        Ex: E  
[Course description](#)    [Course webpage](#)

CS3103    **Artificial Intelligence**    6 ECTS  
C: 2        S:        L: 2        Ex: E  
[Course description](#)    [Course webpage](#)

**Optional course 3**    4 ECTS  
C: 2        S:        L: 2        Ex: EVP

CS3104O1 *Introduction to .NET*  
[Course description](#)

CS3104O2 *Physical systems development using microprocessors*  
[Course webpage](#)

CS3104O3 *Neural networks*  
[Course description](#)    [Course webpage](#)

CS3104O4 *3D computer animation: fundamental algorithms and techniques*  
[Course description](#)    [Course webpage](#)

**Optional course 4** 5 ECTS  
C: 2 S: L: 2 Ex: E

CS3105O1 *Probabilistic programming and modeling*  
[Course description](#) [Course webpage](#)

CS3105O2 *Full-Stack Web Development*

CS3105O3 *Special Chapters in Operating Systems*  
[Course description](#)

CS3105O4 *Automotive specific software engineering*

CS3106 **Practice - Python Programming** 4 ECTS  
C: 1 S: L: 2 Ex: EVP  
[Course description](#)

### *Supplementary courses*

CS3113F **Competitive Programming V** 3 ECTS  
C: 1 S: L: 3 Ex: EVP

CS3214F **Industry Training II** 3 ECTS  
C: S: L: 2 Ex: EVP

**Computer Assisted Education** 2 ECTS  
C: 1 S: 1 L: Ex: CO

**Teaching Traineeship 1 (compulsory pre-higher education)** 3 ECTS  
C: S: 3 L: Ex: CO

### **Semester 2**

CS3207 **Numerical Calculus** 4 ECTS  
C: 2 S: L: 2 Ex: EVP  
[Course description](#) [Course webpage](#)

CS3208 **Computer Graphics** 4 ECTS  
C: 2 S: L: 2 Ex: EVP  
[Course description](#) [Course webpage](#)

**Optional course 5** 5 ECTS  
C: 2 S: L: 2 Ex: E

CS3209O1 *Rule-based Programming*  
[Course description](#) [Course webpage](#)

CS3209O2 *Programming Techniques on the Android Platform*  
[Course description](#)

CS3209O3 *Computational Aspects on the Number Theory*  
[Course description](#) [Course webpage](#)

**Optional course 6**

6 ECTS

C: 2 S: L: 2 Ex: E

CS321001 *Psychology of the Professional Communication in IT industry*CS321002 *Cloud Computing*[Course description](#) [Course webpage](#)CS321003 *Techniques of natural language engineering*CS321004 *Social Media Networks Analysis*[Course description](#) [Course webpage](#)**Optional course 7**

6 ECTS

C: 2 S: L: 2 Ex: E

CS321005 *Petri Nets and Applications*[Course description](#)CS321006 *Smart Cards and their Applications*[Course description](#) [Course webpage](#)CS321007 *Special Topics on .NET programming*CS3212 **Diploma Project Development**

5 ECTS

C: S: L: 4 Ex: EVP

**Supplementary courses**CS3213F **Competitive Programming VI**

3 ECTS

C: 1 S: 3 L: Ex: EVP

**Class management**

3 ECTS

C: 1 S: 1 L: Ex: E

**Teaching Traineeship 2 (compulsory pre-higher education)**

2 ECTS

C: S: 3 L: Ex: CO