# Bachelor studies in Computer Science

## Year 1 (Series 2018-2021)

### Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>ECTS</th>
<th>Credits</th>
<th>Seminars</th>
<th>Lectures</th>
<th>Exams</th>
<th>Course description</th>
<th>Course webpage</th>
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<td>CS1101</td>
<td>Data Structures</td>
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### Supplementary courses

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<tr>
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### Semester 2

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**Supplementary courses**

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<tr>
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<td>Pedagogy I (Foundations of pedagogy + Evaluation Theory and methodology)</td>
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**Year 2 (Series 2017-2020)**

**Semester 1**

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Optional course 1
C: 2  S: 2  L: 2  Ex: EVP

CS2105O1 *Computability, Decidability and Complexity*
Course description

CS2105O2 *Principles of Programming Languages*
Course description

CS2105O3 *Genetic Algorithms*

CS2106  **English Language III**
C: 2  S: 2  L: 2  Ex: EVP
Course description

**Supplementary courses**

CS2113F  **Competitive Programming III**
C: 1  S: 3  L: 2  Ex: EVP

CS2114F  **Physical Education**
C: 1  S: 1  L: 2  Ex: EVP

CS2115F  **Industry Training I**
C: 1  S: 2  L: 2  Ex: EVP

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

**Semester 2**

CS2207  **WEB Technologies**
C: 2  S: 2  L: 2  Ex: E
Course webpage

CS2208  **Advanced Programming**
C: 2  S: 2  L: 2  Ex: E
Course description

CS2209  **Software Engineering**
C: 2  S: 2  L: 2  Ex: E
Course description  Course webpage

CS2210  **DBMS Practice**
C: 1  S: 2  L: 2  Ex: EVP
Course description  Course webpage

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

CS2211O1 *Functional Programming*
Course webpage

CS2211O2 *Continuous Models and MATLAB*
CS2211O3 Introduction to Cryptography
Course description Course webpage

CS2211O4 Entrepreneurship and Innovation in IT

CS2212 English Language IV 4 ECTS
C: 2  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: 1  S: 1  L:  Ex: EVP

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

Year 3 (Series 2016-2019)

Semester 1

CS3101 Machine Learning 6 ECTS
C: 2  S: 2  L:  Ex: E
Course description

CS3102 Information Security 5 ECTS
C: 2  S: 2  L:  Ex: E
Course description Course webpage

CS3103 Artificial Intelligence 6 ECTS
C: 2  S: 2  L:  Ex: E
Course description Course webpage

Optional course 3 4 ECTS
C: 2  S: 2  L:  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: 2  L:  Ex: E

CS3105O1 Probabilistic programming and modeling
Course description Course webpage
CS3105O2  *Client-side Web application development*  
[Course webpage]

CS3105O3  *Special Chapters in Operating Systems*  
[Course description]

CS3105O4  *Automotive specific software engineering*  

**CS3106  Practice - Python Programming**  
C: 1  S:  L: 2  Ex: EVP  
[Course description]

### Supplementary courses

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

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

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

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

### Semester 2

**CS3207  Numerical Calculus**  
C: 2  S:  L: 2  Ex: EVP  
[Course description]  [Course webpage]

**CS3208  Computer Graphics**  
C: 2  S:  L: 2  Ex: EVP  
[Course description]  [Course webpage]

**Optional course 5**  
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  Social Media Networks Analysis**  
[Course description]  [Course webpage]

**CS3209O4  Computational Aspects on the Number Theory**  
[Course description]  [Course webpage]
Optional course 6
6 ECTS
C: 2    S:     L: 2    Ex: E

CS3210O1 Psychology of the Professional Communication in IT industry

CS3210O2 MS-Office Programming
Course description    Course webpage

CS3210O3 Cloud Computing
Course description    Course webpage

CS3210O4 Open Source Methodologies

Optional course 7
6 ECTS
C: 2    S:     L: 2    Ex: E

CS3211O1 Petri Nets and Applications
Course description

CS3211O2 Smart Cards and their Applications
Course description    Course webpage

CS3211O3 Special Topics on .NET programming

CS3211O4 Techniques of natural language engineering

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