

**Computer Science (4 Years, 240 ECTS, Bachelor)**

**CMPS PROGRAM COURSE DISTRIBUTION PER SEMESTER**

| A/A                          | Course type     | Course title                                  | Course code     | Periods per week | Period duration | weeks per Semester | periods per Semester | Number of ECTS |
|------------------------------|-----------------|---|-----------------|------------------|-----------------|--------------------|----------------------|----------------|
| <b>1st SEMESTER (Fall)</b>   |                 |   |                 |                  |                 |                    |                      |                |
| 1.                           | <b>Required</b> | Introduction to Programming                   | <b>CMPS 201</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 2.                           | <b>Required</b> | Discrete Structures                           | <b>CMPS 211</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 3.                           | <b>Required</b> | Calculus I                                    | <b>MATH 101</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 4.                           | <b>Required</b> | ENG_1   | <b>ENGL 203</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 5.                           | <b>Elective</b> | GE_1  | <b>GE</b>       | 3                | 50 mins         | 13                 | 39                   | 6              |
| <b>2nd SEMESTER (Spring)</b> |                 |   |                 |                  |                 |                    |                      |                |
| 6.                           | <b>Required</b> | Intermediate Programming with Data Structures | <b>CMPS 202</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 7.                           | <b>Required</b> | Calculus II                                   | <b>MATH 102</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 8.                           | <b>Required</b> | Linear Algebra                                | <b>MATH 218</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 9.                           | <b>Elective</b> | ENG_2   | <b>ENGL 204</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 10.                          | <b>Elective</b> | GE_2  | <b>GE</b>       | 3                | 50 mins         | 13                 | 39                   | 6              |
| <b>3rd SEMESTER (Fall)</b>   |                 |   |                 |                  |                 |                    |                      |                |
| 11.                          | <b>Required</b> | Software Construction                         | <b>CMPS 270</b> | 3                | 50 mins         | 13                 | 39                   | 6              |
| 12.                          | <b>Required</b> | Data Structures and Algorithms                | <b>CMPS 214</b> | 2                | 75 mins         | 13                 | 26                   | 6              |

|                              |                 |                                  |                 |   |         |    |    |   |
|------------------------------|-----------------|----------------------------------|-----------------|---|---------|----|----|---|
| 13.                          | <b>Required</b> | Computer Organization and Design | <b>CMPS 221</b> | 3 | 50 mins | 13 | 39 | 6 |
| 14.                          | <b>Required</b> | Calculus III                     | <b>MATH 201</b> | 2 | 75 mins | 13 | 26 | 6 |
| 15.                          | <b>Elective</b> | GE_3                             |                 | 3 | 50 mins | 13 | 39 | 6 |
| <b>4th SEMESTER (SPRING)</b> |                 |                                  |                 |   |         |    |    |   |
| 16.                          | <b>Required</b> | Software Engineering             | <b>CMPS 271</b> | 3 | 50 mins | 13 | 39 | 6 |
| 17.                          | <b>Required</b> | Programming Languages            | <b>CMPS 231</b> | 3 | 50 mins | 13 | 39 | 6 |
| 18.                          | <b>Required</b> | Database Systems                 | <b>CMPS 244</b> | 2 | 75 mins | 13 | 26 | 6 |
| 19.                          | <b>Required</b> | Prob. & Statistics               | <b>STAT 230</b> | 2 | 75 mins | 13 | 26 | 6 |
| 20.                          | <b>Elective</b> | GE_4                             |                 | 3 | 50 mins | 13 | 39 | 6 |
| <b>5th SEMESTER (Fall)</b>   |                 |                                  |                 |   |         |    |    |   |
| 21.                          | <b>Required</b> | Operating Systems                | <b>CMPS 240</b> | 3 | 75 mins | 13 | 39 | 6 |
| 22.                          | <b>Required</b> | Theory of Computation            | <b>CMPS 215</b> | 2 | 75 mins | 13 | 26 | 6 |
| 23.                          | <b>Required</b> | Machine Learning                 | <b>CMPS 261</b> | 2 | 75 mins | 13 | 26 | 6 |
| 24.                          | <b>Elective</b> | GE_5                             |                 | 2 | 75 mins | 13 | 26 | 6 |
| 25.                          | <b>Elective</b> | GE_6                             |                 | 3 | 50 mins | 13 | 39 | 6 |
| <b>6th SEMESTER (SPRING)</b> |                 |                                  |                 |   |         |    |    |   |
| 26.                          | <b>Required</b> | Computer Networks                | <b>CMPS 242</b> | 3 | 50 mins | 13 | 39 | 6 |

|   |                 |                      |                 |   |         |    |    |   |
|---|-----------------|----------------------|-----------------|---|---------|----|----|---|
| 27.   | <b>Elective</b> | CS_Elective_1        |                 | 2 | 75 mins | 13 | 26 | 6 |
| 28.   | <b>Elective</b> | CS Elective_2        |                 | 2 | 75 mins | 13 | 26 | 6 |
| 29.   | <b>Elective</b> | GE_7                 |                 | 2 | 75 mins | 13 | 26 | 6 |
| 30.   | <b>Elective</b> | GE_8                 |                 | 3 | 50 mins | 13 | 39 | 6 |
| <b>7th SEMESTER (Fall)</b>  |                 |                      |                 |   |         |    |    |   |
| 31.   | <b>Required</b> | Internship           | <b>CMPS 290</b> |   |         |    |    | 6 |
| 32.   | <b>Elective</b> | CS_Elective_3        |                 | 2 | 75 mins | 13 | 26 | 6 |
| 33.   | <b>Elective</b> | CS_Elective_4        |                 | 2 | 75 mins | 13 | 26 | 6 |
| 34.   | <b>Elective</b> | GE_9                 |                 | 2 | 75 mins | 13 | 26 | 6 |
| 35.   | <b>Elective</b> | GE_10                |                 | 3 | 50 mins | 13 | 39 | 6 |
| <b>8th SEMESTER (SPRING)</b>  |                 |                      |                 |   |         |    |    |   |
| 36.   | <b>Elective</b> | CS_Elective_5        |                 | 2 | 75 mins | 13 | 26 | 6 |
| 37.   | <b>Elective</b> | CS_Elective_6        |                 | 2 | 75 mins | 13 | 26 | 6 |
| 38.   | <b>Elective</b> | Technical Elective_1 |                 | 2 | 75 mins | 13 | 26 | 6 |
| 39.   | <b>Elective</b> | GE_11                |                 | 2 | 75 mins | 13 | 26 | 6 |
| 40.   | <b>Elective</b> | GE_12                |                 | 3 | 50 mins | 13 | 39 | 6 |
| <ul style="list-style-type: none"> <li>• <b>CS Electives:</b> Advanced Machine Learning, Computer Graphics, Mobile Application Development, Game Programming, Compiler Construction, GPU Computing, Advanced Design and Analysis of Algorithms, Advanced Networking Topics, Information Retrieval and Web Search, Computer and Information Security, Web Programming and Design, Data Science, Algorithmic Graph Theory, Systems and Network Programming, Distributed Systems, Digital Media Programming, Numerical Computing.</li> </ul> |                 |                      |                 |   |         |    |    |   |

- **Technical Electives:** Technical electives can be taken from other departments after securing the approval of the Chairperson
- **Notes:**
  - every two 75-minute periods in the above table can be replaced with three 50-minute periods and vice versa
  - Internship can also be taken in the summer of the third year