**Bachelor of Computer Science Road Map – Spring 2019 to Onwards**

Total Credit Hours **132**

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| --- | --- |
| **1st Semester** | **2nd Semester** |
| **Pre- Req** | **Course Code** | **Course** | **Cr. Hr.** | **Pre-Req** | **Course code** | **Course** | **Cr. Hr.** |
|  | CC1021 | Programming Fundamentals | 3 |  | ISL101 | Islamic Studies | 3 |
|  | CC1021L | Programming Fundamentals Lab | 1 | EN111 | EN125 | Composition and Communication | 3 |
|  | MA100 | Calculus and Analytical Geometry **(Calculus 1)** | 3 |  | MA103 | Calculus 2 | 3 |
|  | IT1091 | Introduction to ICT | 2 | PF | CC1022 | Object Oriented Programming | 3 |
|  | IT1091L | Introduction to ICT Lab | 1 | PF | CC1022L | Object Oriented Programming Lab | 1 |
|  | EN111 | English Grammar and Comprehension | 3 |  | CC1041 | Discrete Structures | 3 |
|  | NS125 | Applied Physics | 2 |  |  |  |  |
|  | NS125L | Applied Physics Lab | 1 |  |  |  |  |
|  |  | **Semester Total** | **16** |  |  | **Semester Total** | **16** |
| **3rd Semester** | **4th Semester** |
| **Pre- Req** | **Course Code** | **Course** | **Cr. Hr.** | **Pre-Req** | **Course code** | **Course** | **Cr. Hr.** |
| OOP | CC2042 | Data Structures and Algorithms | 3 | DLD | CS2032 | Computer Organization and Assembly Language | 3 |
| OOP | CC2042L | Data Structures and Algorithms Lab | 1 | DLD | CS2032L | Computer Organization and Assembly Language Lab | 1 |
|  | MA210 | CS Supporting 1(Linear Algebra) | 3 | DSA | CC2141 | Database Systems | 3 |
|  | SD422 | Foreign Language | 2 | DSA | CC2141L | Database Systems Lab | 1 |
|  | HU4092 | Professional Practices | 3 |  | CS2051 | CS Supporting 2 (Numerical Analysis) | 3 |
| AP | CS2031 | Digital Logic Design | 3 |  |  | Technical Elective 1 | 3 |
| AP | CS2031L | Digital Logic Design Lab | 1 |  | MA150 | Probability and Statistics | 3 |
|  |  | **Semester Total** | **16** |  |  | **Semester Total** | **17** |

|  |  |
| --- | --- |
| **5th Semester** | **6th Semester** |
| **Pre- Req** | **Course Code** | **Course** | **Cr. Hr.** | **Pre-Req** | **Course code** | **Course** | **Cr. Hr.** |
| DSA | CC3011 | Operating Systems | 3 |  | CC3071 | Computer Networks | 3 |
| DSA | CC3011L | Operating Systems Lab | 1 |  | CC3071L | Computer Networks Lab | 1 |
|  | CS3043 | Theory of Automata | 3 | EN125 | EN220 | Research Paper Writing and Presentation | 3 |
|  | MA230 | CS Supporting 3 (Differential Equations) | 3 | DIS | CS3151 | Artificial Intelligence | 3 |
|  | CC2101 | Software Engineering | 3 | DIS | CS3151L | Artificial Intelligence Lab | 1 |
| DSA | CS3044 | Analysis of Algorithms | 3 | TOA | CS3045 | Compiler Construction | 3 |
|  |  |  |  |  | SS3080 | Social Service | 1 |
|  |  |  |  |  |  | Technical Elective 2 | 3 |
|  |  | **Semester Total** | **16** |  |  | **Semester Total** | **18** |
| **7th Semester** | **8th Semester** |
| **Pre- Req** | **Course Code** | **Course** | **Cr. Hr.** | **Pre-Req** | **Course code** | **Course** | **Cr. Hr.** |
| OS | CS4172 | Parallel and Distributed Computing | 3 |  | CC3121 | Information Security | 3 |
|  |  | Technical Elective 3 | 3 |  |  | Univ. Elective 2 | 3 |
|  |  | Technical Elective 4 | 3 |  |  | Univ. Elective 3 | 3 |
|  | POL101 | Pakistan Studies | 3 |  |  | Technical Elective 5 | 3 |
|  | CC4181 | FYP 1 | 3 |  | CC4182 | FYP 2 | 3 |
|  |  | Univ. Elective 1 | 3 |  |  |  |  |
|  |  | **Semester Total** | **18** |  |  | **Semester Total** | **15** |
|  |  |  |  |  |  |  | **132** |