**BS(SE) Program Road Map Batch 15 (S2019)**

**Total courses: 42 Total Credit Hours:132**

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| **1st Semester** | **2nd Semester** |
| **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** | **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** |
| IT1091 | Introduction to Info & Comm. Technologies | 2 |  | CC1022 | Object Oriented Programming | 3 | CC1021, CC1021L |
| IT1091L | Introduction to Info & Comm. Technologies Lab | 1 |  | CC1022L | Object Oriented Programming Lab | 1 | CC1021, CC1021L |
| NS125 | Applied Physics | 2 |  | CC1041 | Discrete Structures | 3 |  |
| NS125L | Applied Physics Lab | 1 |  | EN125 | Composition & Communication | 3 | EN111 |
| MA100 | Calculus and Analytical Geometry | 3 |  |  | Supporting Elective-I (e.g., SE1105-Business Process Engineering) | 3 |  |
| EN111 | English Grammar & Comprehension | 3 |  |  | GE/University Elective-I | 3 |  |
| CC1021 | Programming Fundamentals | 3 |  |  |  |  |  |
| CC1021L | Programming Fundamentals Lab | 1 |  |  |  |  |  |
|  | **Semester Credit Hours** | **16** |  |  | **Semester Credit Hours** | **16** |  |

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| **3rd Semester** | **4th Semester** |
| **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** | **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** |
| CC2042 | Data Structures and Algorithms | 3 | CC1022, CC1022L | CC2141 | Database Systems | 3 | CC2042, CC2042L |
| CC2042L | Data Structures and Algorithms Lab | 1 | CC1022, CC1022L | CC2141L | Database Systems Lab | 1 | CC2042, CC2042L |
| MA210 | Linear Algebra | 3 |  |  | Supporting Elective-II(e.g., IT4052-OperationResearch) | 3 |  |
| CC2101 | Software Engineering | 3 |  | MA150 | Probability and Statistics | 3 |  |
|  | GE/University Elective II | 3 |  | SE2102 | Software Requirement Engineering (SRE) | 3 | CC2101 |
|  | GE/University Elective III | 3 |  |  | GE/University Elective IV | 3 |  |
| POL101 | Pakistan Studies | 3 |  |  |  |  |  |
|  | **Semester Credit Hours** | **19** |  |  | **Semester Credit Hours** | **16** |  |
| **5th Semester** | **6th Semester** |
| **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** | **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** |
| SE3103 | Software Design and Architecture | 3 | SE2102 | SE3111 | Software Construction and Development | 2 | SE3103 |
| CC3011 | Operating Systems | 3 | SE2042,SE2042L | SE3111L | Software Construction and Development Lab | 1 | SE3103 |
| CC3011L | Operating Systems Lab | 1 | SE2042, SE2042L | SE3162 | Web Engineering | 3 |  |
|  | SE Elective I | 3 |  | CC3071 | Computer Networks | 3 |  |
|  | SE Elective II | 3 |  | CC3071L | Computer Networks Lab | 1 |  |
|  | Supporting Elective III (e.g., SE3104-Formal Methods in Software Engineering) | 3 |  | CC3121 | Information Security | 3 |  |
| ISL101 | Islamic Studies | 3 |  |  | SE Elective III | 3 |  |
|  | **Semester Credit Hours** | **19** |  |  | **Semester Credit Hours** | **16** |  |

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| **7th Semester** | **8th Semester** |
| **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** | **Course Code** | **Course Title** | **Cr. Hrs.** | **Pre-req** |
| CC4181 | Final Year Project-I | 3 |  | CC4182 | Final Year Project-II | 3 | CC4181 |
| SE4192 | Software Project Management | 3 | CC2101 | SE4114 | Human Computer Interaction | 3 | CC2101 |
| SE4112 | Software Quality Engineering | 3 | CC2101 | HU4092 | Professional Practices | 3 |  |
|  | SE Elective IV | 3 |  |  | SE Elective V | 3 |  |
| SE4113 | Software Re-Engineering | 3 | SE3111, SE3111L |  |  |  |  |
| EN220 | Research Paper Writing & Presentation | 3 | EN125 |  |  |  |  |
|  | **Semester Credit Hours** | **18** |  |  | **Semester Credit Hours** | **12** |  |

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**Dr. Malik Tahir Hassan Dr. Shaukat Iqbal**

**CoD Software Engineering Department Dean School of Systems & Technology**