**Study Plan of BE (Computer System Engineering)**

**Curriculum**

**1st Semester 1st Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | HUM-1001 | Functional English | 3 | 0 | 3 | Humanities |
| 2 | HUM-1002 | Pakistan Studies | 2 | 0 | 2 | Humanities |
| 3 | BS-1003 | Calculus & Analytical Geometry | 3 | 0 | 3 | Basic Sciences |
| 4 | CSE-1501 | Computing Fundamentals | 3 | 1 | 4 | Computing |
| 5 | BS-1004 | Applied Physics | 3 | 1 | 4 | Basic Sciences |
|  |  | **Total** | **14** | **2** | **16** |  |

**2nd Semester 1st Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | BS-1005 | Linear Algebra | 3 | 0 | 3 | Basic Sciences |
| 2 | HUM-1006 | Islamic Studies/Ethics | 2 | 0 | 2 | Humanities |
| 3 | CSE-1101 | Basic Electronics & Circuits | 3 | 1 | 4 | Foundation |
| 4 | CSE-1102 | Engineering Workshop | 0 | 1 | 1 | Foundation |
| 5 | CSE-1502 | Computer Programming Principles | 3 | 1 | 4 | Computing |
| 6 | HUM-1007 | Communication Skills | 3 | 0 | 3 | Humanities |
|  |  | **Total** | **14** | **3** | **17** |  |

**3rd Semester 2nd Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | BS-2008 | Differential Equation | 3 | 0 | 3 | Basic Sciences |
| 2 | CSE-2103 | Digital Logic Design | 3 | 1 | 4 | Foundation |
| 3 | CSE-2104 | Data Structures & Algorithms | 3 | 1 | 4 | Foundation |
| 4 | CSE-2105 | Object Oriented Programming | 3 | 1 | 4 | Foundation |
| 5 | CSE-2106 | Computer Aided Engineering Drawing | 0 | 1 | 1 | Foundation |
|  |  | **Total** | **12** | **4** | **16** |  |

**4th Semester 2nd Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | BS-2009 | Complex Variable & Transform | 3 | 0 | 3 | Basic Sciences |
| 2 | HUM-2601 | Engineering Economics & Management | 3 | 0 | 3 | Humanities/ Management Sciences |
| 3 | CSE-241 | Electrical Network Analysis | 3 | 1 | 4 | IDEE |
| 4 | CSE-2201 | Computer Architecture & Organization | 3 | 0 | 3 | Breadth |
| 5 | CSE-2202 | Database Management System | 3 | 1 | 4 | Breadth |
|  |  | **Total** | **15** | **2** | **17** |  |

**5th Semester 3rd Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | CSE-3203 | Operating Systems | 3 | 1 | 4 | Breadth |
| 2 | CSE-3107 | Signals & Systems | 3 | 1 | 4 | Foundation |
| 3 | BS-3010 | Probability &Statistics | 3 | 0 | 3 | Basic Sciences |
| 4 | CSE-3204 | Web Engineering | 2 | 1 | 3 | Breadth |
| 5 | CSE-3108 | Microprocessor Based System Design | 3 | 1 | 4 | Foundation |
|  |  | **Total** | **14** | **4** | **18** |  |

**6th Semester 3rd Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | CSE-3205 | Data Communication and Computer Networks | 3 | 1 | 4 | Breadth |
| 2 | CSE-3206 | Software Engineering | 3 | 1 | 4 | Breadth |
| 3 | CSE-3207 | Digital System Design | 3 | 1 | 4 | Breadth |
| 4 | CSE-342 | Digital Signal Processing | 2 | 1 | 3 | IDEE |
| 5 | HUM – 3011 | Technical Report Writing | 3 | 0 | 3 | Humanities |
|  |  | **Total** | **14** | **4** | **18** |  |

**7th Semester 4th Year**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |  |
|  |  |  | **Th** | **Lab** | **Total** |  |
| 1 | CSE-43xx | Depth Elective-I | 3 | 0 | 3 | Depth |
| 2 | CSE-4208 | Computer Network Security | 2 | 1 | 3 | Breadth |
| 3 | CSE-4209 | Artificial Intelligence | 3 | 1 | 4 | Breadth |
| 4 | HUM-4602 | Project Management & Technopreneurship | 3 | 0 | 3 | Humanities/ Management Sciences |
| 5 | CSE-499 | **Final Year Project-I** | 0 | 3 | 3 | Project Design |
|  |  | **Total** | **11** | **5** | **16** |  |

**8th Semester 4th Year**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | | **Subject** | **Credit Hours** | | |  |
|  |  |  | | **Th** | **Lab** | **Total** |  |
| 1 | CSE-43xx | Depth Elective-II | | 3 | 0 | 3 | Depth |
| 2 | CSE-4301 | Mobile & Wireless Communication | | 3 | 1 | 4 | Depth |
| 3 | CSE-43xx | Depth Elective-III | | 3 | 1 | 4 | Depth |
| 4 | HUM-4012 | Professional Ethics | | 3 | 0 | 3 | Humanities |
| 5 | CSE-499 | **Final Year Project-II** | | 0 | 3 | 3 | Project Design |
|  |  | **Total** | | **12** | **5** | **17** |  |
|  |  | **GRAND TOTAL** | | **106** | **29** | **135** |  |

**ELECTIVE COURSES (DEPTH-03+00)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.no** | **Course Code** | **Subject** | **Credit Hours** | | |
|  |  |  | **Th** | **Lab** | **Total** |
|  | CSE-4302 | Parallel & Distributed Computing | 3 | 0 | 3 |
|  | CSE-4303 | Human Computer Interfacing | 3 | 0 | 3 |
|  | CSE-4304 | Data Science & Analytics | 3 | 0 | 3 |
|  | CSE-4305 | Information System | 3 | 0 | 3 |
|  | CSE-4306 | Network Planning & Management | 3 | 0 | 3 |
|  | CSE-4307 | Software Project Management | 3 | 0 | 3 |
|  | CSE-4308 | Software Quality Assurance & Testing | 3 | 0 | 3 |
|  | CSE-4309 | Software Architecture & Engineering | 3 | 0 | 3 |
| **ELECTIVE COURSES (DEPTH-03+01)** | | | | | |
|  |  |  | **Th** | **Lab** | **Total** |
|  | CE-4310 | Visual Programming | 3 | 1 | 4 |
|  | CE-4311 | Android Applications & Development | 3 | 1 | 4 |
|  | CE-4312 | Embedded Systems | 3 | 1 | 4 |
|  | CE-4313 | VLSI Design Technique | 3 | 1 | 4 |