**Updated BSEE Roadmap**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **UMT SEN Electrical Engineering Department** | | | | | | | |
| **BS Electrical Engineering Roadmap** | | | | | | | |
|  | | | | | | | |
| **FIRST YEAR** | | | | | | | |
| **Fall Semester (1st)** | | | | **Spring Semester (2nd)** | | | |
| **Code** | **Course Title** | **CH** | **Pre-req** | **Code** | **Course Title** | **CH** | **Pre-req** |
| CS-143 | Programming Fundamentals | 3 | - - - - | MA-230 | Differential Equations | 3 | - - - - |
| CS-143L | Programming Fundamentals Lab | 1 | - - - - | EE-102L | Engineering Drawing | 1 | - - - - |
| EE-112L | Workshop Practice | 2 | - - - - | ME-121 | Engineering Mechanics | 3 | - - - - |
| EN-110 | English Grammar and Comprehension | 2 | - - - - | ME-121L | Engineering Mechanics Lab | 1 | - - - - |
| MA-112 | Applied Calculus | 3 | - - - - | HM-150 | Islamic Studies / Ethics (For Non-Muslim Students) | 2 | - - - - |
| NS-124 | Applied Physics | 3 | - - - - | EE-110 | Circuit Analysis | 3 | - - - - |
| NS-124L | Applied Physics Lab | 1 | - - - - | EE-110L | Circuit Analysis Lab | 1 | - - - - |
| SS-171 | Pakistan Studies | 2 | - - - - | EN-112 | Composition and Communication | 2 | EN-110 |
| - - - - | - - - - | - - - | - - - - | - - - - | - - - - | - - - | - - - - |
| **Total** | | 17 |  | **Total** | | 16 | |
|  |  |  |  |  |  |  |  |
| **SECOND YEAR** | | | | | | | |
| **Fall Semester (3rd)** | |  |  | **Spring Semester (4th)** | | | |
| **Code** | **Course Title** | **CH** | **Pre-req** | **Code** | **Course Title** | **CH** | **Pre-req** |
| EE-212 | Electrical Network Analysis | 3 | - - - - | EE-306 | Probability and Statistics for Engineers | 3 | - - - - |
| EE-212L | Electrical Network Analysis Lab | 1 | - - - - | EE-208 | Electronic Devices and Circuits | 3 | EE-110 |
| EE-220 | Digital Logic Design | 3 | - - - - | EE-208L | Electronic Devices and Circuits Lab | 1 | - - - - |
| EE-220L | Digital Logic Design Lab | 1 | - - - - | EE-213 | Data Structures and Algorithms | 3 | CS-143 |
| MA-210 | Linear Algebra | 3 | - - - - | EE-213L | Data Structures and Algorithms Lab | 1 | - - - - |
| ME-322 | Applied Thermodynamics | 3 | - - - - | EN-223 | Research Project and Presentation | 2 | EN-112 |
| CS-151 | Object Oriented Programming | 3 | CS-143 | MA-223 | Complex Variables and Transforms | 3 | - - - - |
| CS-151L | Object Oriented Programming Lab | 1 | CS-143 |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Total** | | 18 |  | **Total** | | 16 | |
|  |  |  |  |  |  |  |  |
| **THIRD YEAR** | | | | | | | |
| **Fall Semester (5th)** | |  |  | **Spring Semester (6th)** | | | |
| **Code** | **Course Title** | **CH** | **Pre-req** | **Code** | **Course Title** | **CH** | **Pre-req** |
| EE-310 | Electromagnetics | 3 | NS-124 | EE-xxx | Breadth Core – I | 3 |  |
| EE-315 | Signals and Systems | 3 | - - - - | EE-xxx | Breadth Core – I Lab | 1 |  |
| EE-315L | Signals and Systems Lab | 1 | - - - - | EE-xxx | Breadth Core – II | 3 |  |
| EE-328 | Modern Microprocessor Systems | 3 | - - - - | EE-xxx | Breadth Core – II Lab | 1 |  |
| EE-328L | Modern Microprocessor Systems Lab | 1 | - - - - | EE-328 | Control Systems | 3 | EE-315 |
| EE-340 | Electrical Machines | 3 | - - - - | EE-328L | Control Systems Lab | 1 | - - - - |
| EE-340L | Electrical Machines Lab | 1 | - - - - | SS-xxx | Social Science Elective-II | 3 | - - - - |
| SS-215 | Social Science Elective-I | 3 | - - - - | MS-xxx | Management Science Elective-I | 3 |  |
|  |  |  |  |  |  |  |  |
| **Total** | | 18 |  | **Total** | | 18 | |
|  |  |  |  |  |  |  |  |
| **FOURTH YEAR** | | | | | | | |
| **Fall Semester (7th)** | |  |  | **Spring Semester (8th)** | | | |
| **Code** | **Course Title** | **CH** | **Pre-req** | **Code** | **Course Title** | **CH** | **Pre-req** |
| EE-410 | Communication Systems | 3 | EE-315 | EE-492 | Senior Design Project – II | 3 | - - - - |
| EE-410L | Communication Systems Lab | 1 | - - - - | NS-xxx | Natural Science Elective | 3 | - - - - |
| EE-491 | Senior Design Project - I | 3 | - - - - | MS-xxx | Management Science Elective-II | 3 | - - - - |
| EE-xxx | Depth Elective-I | 3 | - - - - | EE-xxx | Depth Elective-IV | 3 | - - - - |
| EE-xxx | Depth Elective-II | 3 | - - - - | EE-xxx | Depth Elective-V | 3 | - - - - |
| EE-xxxL | Depth Elective-II Lab | 1 | - - - - | EE-xxxL | Depth Elective-V Lab | 1 | - - - - |
| EE-xxx | Depth Elective-III | 3 | - - - - |  | - - - - |  | - - - - |
|  |  |  | - - - - | - - - - | - - - - |  | - - - - |
| **Total** | | 17 |  | **Total** | | 16 | |
| **Total Credit Hours: 136** | | | | | | | |