**DEPARTMENT OF BIOMEDICAL ENGINEERING**

***Board of Studies Approved Curriculum of B.E Biomedical Engineering***

**2023**

| **Semester – I** | | | | | | | | | | | |  | **Semester – II** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Code** | | **Course** | | | | | **Cr. Hr.** | | | | **S. No.** | **Code** | **Course** | | | **Cr. Hr.** | | |
| 1 | NS-122 | | Applied Physics | | | | | 2 | | + | 1 | 1 | HS-105 | Pakistan Studies | | | 2 | + | 0 |
| 2 | CS-113 | | Introduction to Computing | | | | | 2 | | + | 1 | 2 | NS-116 | Calculus & Analytical Geometry | | | 3 | + | 0 |
| 3 | EE-120 | | Basic Electrical Engineering | | | | | 3 | | + | 1 | 3 | BME-123 | Physiology I | | | 2 | + | 1 |
| 4 | BMF-114 | | Basic Mathematics | | | | | 4 | | + | 0 | 4 | EE-121 | Circuit Analysis | | | 3 | + | 1 |
| BMF-114 | | Basic Biology | | | | | 4 | | + | 0 | 5 | CS-125 | Object Oriented Programming | | | 2 | + | 1 |
| 5 | BME-115 | | Introduction to Biomedical Engineering | | | | | 1 | | + | 0 | 6 | BME-126 | Human Anatomy | | | 2 | + | 1 |
| 6 | HS-117 | | Islamic Studies | | | | | 2 | | + | 0 |  |  |  | | |  |  |  |
| HS-116 | | Ethical Behavior | | | | | 2 | | + | 0 |  |  |  | | |  |  |  |
| **Sub Total =** | | | | | | | | 14 | | + | 3 | **Sub Total =** | | | | | **14** | **+** | **4** |
| **Total =** | | | | | | | | **17** | | | | **Total =** | | | | | **18** | | |
|  | | | | | | | | | | | |  |  |  |  | | |  |  |  |
| **Semester – III** | | | | | | | | | | | |  | **Semester – IV** | | | | | | | |
| **S. No.** | | **Code** | | **Course** | | | | | **Cr. Hr.** | | | **S. No.** | **Code** | **Course** | | **Cr. Hr.** | | | |
| **1** | | NS-211 | | Complex Variable & Transformation | | | | | 3 | + | 0 | 1 | BME-241 | Biomedical Electronics | | 3 | | + | 1 |
| **2** | | BME-232 | | Physiology II | | | | | 2 | + | 1 | 2 | CS-219 | Digital Logic Design | | 3 | | + | 1 |
| **3** | | BME-233 | | Biochemistry | | | | | 2 | + | 1 | 3 | NS-223 | Linear Algebra & Differential Equation | | 3 | | + | 0 |
| **4** | | EL-103 | | Basic Electronics | | | | | 3 | + | 1 | 4 | NS-312 | Probability and Statistics | | 3 | | + | 0 |
| **5** | | EE-315 | | Computer Aided Engineering Drawing | | | | | 0 | + | 1 | 5 | EE-224 | Signals & Systems | | 3 | | + | 1 |
| **6** | | HS-119 | | Communication Skills | | | | | 2 | + | 0 |  |  |  | |  | |  |  |
| Sub Total = | | | | | | | | | 12 | + | 4 | Sub Total = | | | | **15** | | **+** | **3** |
| **Total =** | | | | | | | | | **16** | | | **Total =** | | | | **18** | | | |
|  | | | | | | | | |  | | |  |  | | | |  | | | |
| **Semester – V** | | | | | | | | | | | |  | **Semester – VI** | | | | | | | |
| **S. No.** | **Code** | | | **Course** | | | **Cr. Hr.** | | | | | **S. No.** | **Code** | **Course** | **Cr. Hr.** | | | | |
| **1** | BME-351 | | | Biomedical Instrumentation 1 | | | 3 | | | + | 1 | **1** | BME-361 | Biomedical Instrumentation II | 3 | | | + | 1 |
| **2** | BME-244 | | | Biomechanics | | | 3 | | | + | 1 | **2** | BM-362 | Elective I | 3 | | | + | 0 |
| **3** | NS-313 | | | Numerical Methods | | | 3 | | | + | 0 | **3** | BME-363 | Biomedical Control Systems | 3 | | | + | 1 |
| **4** | EE-314 | | | Microprocessor & Interfacing | | | 2 | | | + | 1 | **4** | CS-324 | Modeling & Simulation | 2 | | | + | 1 |
| **5** | BME-355 | | | Biomedical Signal Processing | | | 3 | | | + | 1 | **5** | BME-365 | Biomaterials | 3 | | | + | 1 |
| **Sub Total =** | | | | | | | **14** | | | **+** | **3** | **Sub Total =** | | | **14** | | | **+** | **4** |
| **Total =** | | | | | | | **18** | | | | | **Total =** | | | **18** | | | | |
|  | |  | |  | | |  | | |  |  |  |  |  |  |  | | |  |  |
| **Semester – VII** | | | | | | | | | | | |  | **Semester – VIII** | | | | | | | |
| **S. No.** | | **Code** | | | **Course** | **Cr. Hr.** | | | | | | **S. No.** | **Code** | **Course** | **Cr. Hr.** | | | | |
| **1** | | MS-411 | | | Engineering Management | 3 | | | | + | 0 | **1** | BM-481 | Elective IV | 3 | | | + | 0 |
| **2** | | BME-472 | | | Medical Imaging | 2 | | | | + | 1 | 2 | MS-422 | Professional Practices & Ethics | 3 | | | + | 0 |
| **3** | | BME-473 | | | Elective II | 3 | | | | + | 0 | **3** | BM-483 | Elective V | 3 | | | + | 0 |
| **4** | | BM-474 | | | Elective III | 3 | | | | + | 0 | **4** | BMP-474 | Biomedical Engineering Project (Phase II) | 0 | | | + | 3 |
| **5** | | HS-415 | | | Technical Report Writing | 3 | | | | + | 0 | 5 | MS-304 | Entrepreneurship | 3 | | | + | 0 |
| **6** | | BMP-474 | | | Biomedical Engineering Project (Phase I) | 0 | | | | + | 3 |  |  |  |  | | |  |  |
| **Sub Total =** | | | | | | **14** | | | | **+** | **4** | **Sub Total =** | | | **12** | | | **+** | **3** |
| **Total =** | | | | | | **18** | | | | | | **Total =** | | | **15** | | | | |

**Total Credit Hours =138**