



**VIT**<sup>®</sup>  
**BHOPAL**

**SCHOOL OF ELECTRICAL AND ELECTRONICS  
ENGINEERING**

**Curriculum**

**of**

**B.Tech-Electronics and Communication Engineering(BEC)  
( 2019-2023)**

|                            |                            |                                |  |                                       |                      |
|----------------------------|----------------------------|--------------------------------|--|---------------------------------------|----------------------|
| <b>Proposed Structure:</b> | <b>Programme Core (PC)</b> | <b>Programme Elective (PE)</b> | <b>University Core (UC)-<br/>NSC+NSE+HUM&amp;MGT-C + HUM&amp;MGT-E (for 2018, 2019 and 2020 batches)</b> | <b>University/ Open Elective (UE)</b> | <b>Total credits</b> |
|                            | <b>99</b>                  | 21                             | <b>54</b>  | <b>6</b>                              | <b>180</b>           |

| <b>PROGRAM CORE</b> |   |     | <b>Credits</b> |   |
|---------------------|---|-----|----------------|---|
| EEE1001             | Electric Circuits and systems                   | LTP | 4              | <b>All the Courses need to be taken</b> |
| CSE1021             | Introduction to problem solving and programming | LTP | 4              |   |
| EEE2002             | Electromagnetic Fields                          | LT  | 3              |   |
| ECE2001             | Electron Devices and Circuits                   | LTP | 4              |   |
| ECE3001             | Analog Electronic Circuits                      | LTP | 4              |   |
| ECE2002             | Digital Logic Design                            | LTP | 4              |   |
| EEE2001             | Network Analysis                                | LT  | 3              |   |
| ECE2003             | Signals and Systems                             | LT  | 3              |   |
| ECE3002             | Transmission Lines and Waveguides               | LT  | 3              |   |
| ECE3003             | Analog Communication Systems                    | LTP | 4              |   |
| ECE4001             | Linear Integrated Circuits                      | LP  | 3              |   |
| ECE3004             | Microprocessors & Microcontrollers              | LTP | 4              |   |
| ECE4002             | Antenna and wave propagation                    | LT  | 3              |   |
| ECE4003             | Digital Communication Systems                   | LP  | 3              |   |
| ECE3005             | Digital Signal Processing                       | LTP | 4              |   |
| ECE2098             | Project Exhibition -1                           | PJ  | 1              |   |
| ECE2099             | Project Exhibition -2                           | PJ  | 1              |   |
| ECE3099             | Engineering Projects in community service       | PJ  | 2              |   |
| ECE2097             | Internship                                      | PJ  | 2              |   |
| ECE3006             | VLSI Design                                     | LP  | 3              |   |
| CSE3006             | Computer Networks                               | LTP | 4              |   |
| ECE4004             | Microwave and optical communication             | LTP | 4              |   |
| ECE4005             | Wireless and Mobile Communication               | LT  | 3              |   |

|         |                           |                |           |  |
|---------|---------------------------|----------------|-----------|--|
| ECE4098 | Comprehensive Examination | PJ             | 2         |  |
| ECE4099 | Capstone Project          | PJ             | 20        |  |
| ECE2096 | Engineering Design        | LT             | 2         |  |
| MEE1007 | Engineering Graphics      | P              | 2         |  |
|         |                           | <b>Credits</b> | <b>99</b> |  |

| PROGRAM ELECTIVE |  |     | Credits |  |
|------------------|--|-----|---------|--|
| ECE4006          | Sensors and IoT                              | LP  | 3       | 21 Credit Required<br>at least 7 Need to<br>be taken |
| ECE4007          | Wireless Sensor Networks                     | LT  | 3       |  |
| ECE4008          | Cryptography and Network Security            | LT  | 3       |  |
| ECE4009          | Satellite Communication                      | LT  | 3       |  |
| CSE2002          | Data Structures and Algorithms               | LTP | 4       |  |
| CSE2003          | Computer Architecture and Organization       | LT  | 4       |  |
| CSE3003          | Operating Systems                            | LTP | 4       |  |
| ECE4010          | Embedded Systems                             | LTP | 4       |  |
| ECE4011          | Embedded C and Linux                         | LP  | 3       |  |
| ECE3007          | IC Technology: Design and Testing            | LT  | 3       |  |
| ECE3008          | Digital System Design                        | LT  | 3       |  |
| ECE2004          | Nanoscience and Nanotechnology               | LT  | 3       |  |
| ECE2005          | Optoelectronics                              | LT  | 3       |  |
| ECE3009          | Micro Electro Mechanical Systems             | LP  | 3       |  |
| ECE4012          | Digital Image processing                     | LP  | 3       |  |
| CSE3010          | Computer Vision                              | LP  | 3       |  |
| ECE4013          | Neural Networks and Fuzzy Systems            | LT  | 3       |  |
| ECE4014          | Biomedical Instrumentation                   | LT  | 3       |  |
| ECE4015          | Radar and Navigational Systems               | LT  | 3       |  |
| ECE3010          | Information Theory and Coding                | LT  | 3       |  |
| ECE4016          | Pattern Recognition and Analytics            | LP  | 3       |  |
| ECE4017          | Avionics Electronics                         | LT  | 3       |  |
| ECE3011          | Automotive Electrical and Electronic systems | LT  | 3       |  |

|         |  |                |           |
|---------|--|----------------|-----------|
| EEE3003 | Control Systems                              | LTP            | 4         |
| EEE3006 | Robotics and Control                         | LT             | 3         |
| MEE3007 | Renewable Energy Sources                     | LT             | 3         |
| ECE3012 | Electronic Measurements and Instrumentation  | LT             | 3         |
| ECE2006 | Debugging of Electronic Circuits and Systems | LP             | 3         |
|         |  | <b>Credits</b> | <b>21</b> |

| University Core |  |     | Credits |  |
|-----------------|--|-----|---------|--|
| PHY1001         | Engineering Physics                                  | LTP | 4       | <b>29</b>  |
| CHY1001         | Engineering Chemistry                                | LTP | 4       |  |
| MAT1001         | Calculus and Laplace transforms                      | LT  | 4       |  |
| MAT2001         | Differential & Difference Equations                  | LT  | 3       |  |
| MAT3001         | Complex Variables and Partial Differential Equations | LT  | 4       |  |
| MAT3003         | Probability, Statistics and Reliability              | LT  | 4       |  |
| MAT3004         | Random Processes                                     | LT  | 3       |  |
| CHY1002         | Environmental Science                                | LT  | 3       |  |
| PHY2003         | Computational Physics                                | LP  | 3       | <b>Natural Science<br/>Elective<br/>3<br/>Credit is<br/>Required</b> |
| PHY2001         | Materials Science                                    | LP  | 3       |  |
| CHY2001         | Materials and Instrumental Methods                   | LT  | 3       |  |
| CHY2002         | Chemistry of Microelectronics                        | LT  | 3       |  |
| MAT2003         | Applied Numerical methods                            | LT  | 3       |  |
| MAT2004         | Operations Research                                  | LT  | 3       |  |
| MAT3002         | Applied Linear algebra                               | LT  | 3       |  |
| ENG1002         | Communication for Technical Professionals            | LT  | 3       | <b>13</b>  |
| ENG2001         | Technical Writing & Composition                      | LP  | 2       |  |
| HUM1007         | Ethics and Values                                    | LT  | 2       |  |
| STS1001         | Soft-Skills 1  | LT  | 1       |  |
| STS2001         | Soft-Skills 2  | LT  | 1       |  |
| EXCXXXX         | Extracurricular Activity                             | P   | 2       |  |
| HUM1008         | Swachh Bharat  | PJ  | 2       |  |
| MGT1002         | Engineering economics                                | LT  | 3       |  |

|         |  |    |           |   |
|---------|--|----|-----------|---|
| HUM100X | Professional development for engineers   | LT | 3         | H&M Electives<br>9 Credits need to be taken |
| HUM1002 | Emotional intelligence   | LT | 3         |   |
| HUM1009 | Anthropology for engineers   | LT | 3         |   |
| MGT1002 | Principles of management and organizational behaviour  | LT | 3         |   |
| MGT2004 | Supply chain management  | LT | 3         |   |
| MGT2003 | Technology entrepreneurship  | LT | 3         |   |
| HUM1013 | Indian culture and heritage  | LT | 3         |   |
| HUM1014 | Indian constitution  | LT | 3         |   |
| MGT1020 | Banking and insurance  | LT | 3         |   |
|         | VTOL Courses   | LT | 2,3,4     |   |
| PLA1001 | Programming for computing engineers  | LT | 4         |   |
|         | <b>Total Credit (Natural Science core-29, Natural Science Elective - 3, H&amp;M Core – 13, H&amp;M Elective- 9= 54Credits)</b> |    | <b>54</b> |   |

| University/open Elective |   |                   | Credits    |                              |
|--------------------------|---|-------------------|------------|------------------------------|
|                          |   |                   | Credits    |                              |
| PLA1003                  | Logic and Problem solving for engineers | LT                | 3          | 6 Credit is Required (Any 2) |
|                          | Open elective                           |                   | 3          |                              |
|                          | Coursere Courses                        |                   | 2,3,4      |                              |
|                          |   | <b>Total</b>      | <b>6</b>   |                              |
|                          |   | <b>Grand Toal</b> | <b>180</b> |                              |

| Category                   | Core Credits | Elective Credits | Total Credits |
|----------------------------|--------------|------------------|---------------|
| Natural Sciences           | 29           | 03               | <b>32</b>     |
| Engineering and Technology | 99           | 21               | <b>120</b>    |
| Humanities and Management  | 13           | 09               | <b>22</b>     |
| Open Electives             | 00           | 06               | <b>06</b>     |
| Total Credits              |              |                  | <b>180</b>    |