

**VIT BHOPAL UNIVERSITY, BHOPAL**

**School of Electrical & Electronics Engineering (SEEE)**

**CURRICULUM VER. 1.0**

**B.Tech (Electronics and Communication Engineering)**

**(2018 - 19 Batch onwards)**

| <b>Category</b>            | <b>Core Credits</b> | <b>Elective Credits</b> | <b>Total Credits</b> |
|----------------------------|---------------------|-------------------------|----------------------|
| 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>           |

**VIT BHOPAL / B.Tech. Electronics and Communication Engineering (4 years - 180 Credits)**

| Course Code | Natural Sciences                                     | :    | 32 Cr. | Course Code | Engineering and Technology                         | :    | 120 Cr. | Course Code         | Humanities and Management Courses                   | :    | 22 Cr. | Course Code | Open Electives             | 6 Cr. |
|-------------|--|------|--------|-------------|--|------|---------|---------------------|---|------|--------|-------------|----------------------------|-------|
|             | <b>Natural Sciences - Core courses</b>               | Type | 29     |             | <b>Engineering &amp; Technology - Core courses</b> | Type | 99      |                     | <b>Humanities and Management - Core courses</b>     | Type | 13     |             |                            |       |
| PHY1001     | Engineering Physics                                  | LTP  | 4      | EEE1001     | Electric Circuits and systems                      | LTP  | 4       | ENG1002             | Communication for Technical Professionals           | LT   | 3      |             | Any courses of 6 credits   |       |
| CHY1001     | Engineering Chemistry                                | LTP  | 4      | CSE1001     | Introduction to problem solving and programming    | LTP  | 4       | ENG2001             | Technical Writing & Composition                     | LP   | 2      |             | Placement activity-2<br>LT | 2     |
| MAT1001     | Calculus and Laplace transforms                      | LT   | 4      | EEE2002     | Electromagnetic Fields                             | LT   | 3       | HUM1007             | Ethics and Values                                   | LT   | 2      |             | Coursera Courses           |       |
| MAT2001     | Differential & Difference Equations                  | LT   | 3      | ECE2001     | Electron Devices and Circuits                      | LTP  | 4       | STS1001             | Soft-Skills 1                                       | LT   | 1      |             |                            |       |
| MAT3001     | Complex Variables and Partial Differential Equations | LT   | 4      | ECE3001     | Analog Electronic Circuits                         | LTP  | 4       | STS2001             | Soft-Skills 2                                       | LT   | 1      |             |                            |       |
| MAT3003     | Probability, Statistics and Reliability              | LT   | 4      | ECE2002     | Digital Logic Design                               | LTP  | 4       | EXCXXX              | Extracurricular Activity                            | P    | 2      |             |                            |       |
| MAT3004     | Random Processes                                     | LT   | 3      | EEE2001     | Network Analysis                                   | LT   | 3       | HUM1008             | Swachh Bharat                                       | PJ   | 2      |             |                            |       |
| CHY1002     | Environmental Science                                | LT   | 3      | ECE2003     | Signals and Systems                                | LT   | 3       |                     |   |      |        |             |                            |       |
|             | <b>Natural Sciences - Elective Courses</b>           |      |        | ECE3002     | Transmission Lines and Waveguides                  | LT   | 3       |                     | <b>Humanities and Management - Elective Courses</b> | :    | 9      |             |                            |       |
|             |  | Type | 3      | ECE3003     | Analog Communication Systems                       | LTP  | 4       | HUMXXXX/<br>MGTXXXX | Course I  | LT   | 3      |             |                            |       |
| PHY2003     | Computational Physics                                | LP   | 3      | ECE4001     | Linear Integrated Circuits                         | LP   | 3       | HUMXXXX/<br>MGTXXXX | Course II   | LT   | 3      |             |                            |       |
| PHY2001     | Materials Science                                    | LP   | 3      | ECE3004     | Microprocessors &                                  | LTP  | 4       | HUMXXXX/<br>MGTXXXX | Course III  | LT   | 3      |             |                            |       |

|         |                                    |    |   |         |   |     |           |         |                           |    |   |  |  |  |
|---------|------------------------------------|----|---|---------|---|-----|-----------|---------|---------------------------|----|---|--|--|--|
|         |                                    |    |   |         | Microcontrollers  |     |           | MGTXXXX |                           |    |   |  |  |  |
| PHY2002 | Energy and Environmental physics   | LT | 3 | ECE4002 | Antenna and wave propagation  | LT  | 3         |         | Foreign Language          | LT | 2 |  |  |  |
| CHY2001 | Materials and Instrumental Methods | LT | 3 | ECE4003 | Digital Communication Systems   | LP  | 3         |         | (Refer Annexure for List) |    |   |  |  |  |
| CHY2002 | Chemistry of Microelectronics      | LT | 3 | ECE3005 | Digital Signal Processing   | LTP | 4         |         | VTOL courses              |    |   |  |  |  |
| MAT2003 | Applied Numerical methods          | LT | 3 | DSN2098 | Project Exhibition -1   | PJ  | 1         |         | Placement activity-1      | LT | 4 |  |  |  |
| MAT2004 | Operations Research                | LT | 3 | DSN2099 | Project Exhibition -2   | PJ  | 1         |         |                           |    |   |  |  |  |
| MAT3002 | Applied Linear algebra             | LT | 3 | DSN3099 | 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         |         |                           |    |   |  |  |  |
|         |                                    |    |   | DSN4098 | Comprehensive Exam  | PJ  | 2         |         |                           |    |   |  |  |  |
|         |                                    |    |   | ECE4099 | Capstone Project  | PJ  | 20        |         |                           |    |   |  |  |  |
|         |                                    |    |   | DSN2096 | Engineering Design  | LT  | 2         |         |                           |    |   |  |  |  |
|         |                                    |    |   | MEE1007 | Engineering Graphics  | P   | 2         |         |                           |    |   |  |  |  |
|         |                                    |    |   |         | <b>Engineering &amp; Technology - Elective courses (List given below)</b> | :   | <b>21</b> |         |                           |    |   |  |  |  |

*Total Credits of 21 to be chosen from the basket of courses.*

*A Minimum of 15 credits from any particular basket will enable a Certificate with Specialization in that Domain.*

| Course Code | Networking & Computing Systems         | Type | Cr | Course Code | Embedded Systems & Microelectronic Technologies | Type | Cr | Course Code | Signal & Information Processing   | Type | Cr | Control & Intelligent Systems |  | Type | Cr |
|-------------|--|------|----|-------------|---|------|----|-------------|-----------------------------------|------|----|-------------------------------|--|------|----|
|             |  |      |    |             |   |      |    |             |                                   |      |    |                               |  |      |    |
| ECE4006     | Sensors and IoT                        | LP   | 3  | ECE4010     | Embedded Systems                                | LTP  | 4  | ECE4012     | Digital Image processing          | LP   | 3  | ECE4017                       | Avionics Electronics                         | LT   | 3  |
| ECE4007     | Wireless Sensor Networks               | LT   | 3  | ECE4011     | Embedded C and Linux                            | LP   | 3  | CSE3010     | Computer Vision                   | LP   | 3  | ECE3011                       | Automotive Electrical and Electronic systems | LT   | 3  |
| ECE4008     | Cryptography and Network Security      | LT   | 3  | ECE3007     | IC Technology: Design and Testing               | LT   | 3  | ECE4013     | Neural Networks and Fuzzy Systems | LT   | 3  | EEE3003                       | Control Systems                              | LTP  | 4  |
| ECE4009     | Satellite Communication                | LT   | 3  | ECE3008     | Digital System Design                           | LT   | 3  | ECE4014     | Biomedical Instrumentation        | LT   | 3  | EEE3006                       | Robotics and Control                         | LT   | 3  |
| CSE2002     | Data Structures and Algorithms         | LTP  | 4  | ECE2004     | Nanoscience and Nanotechnology                  | LT   | 3  | ECE4015     | Radar and Navigational Systems    | LT   | 3  | MEE3007                       | Renewable Energy Sources                     | LT   | 3  |
| CSE2003     | Computer Architecture and Organization | LT   | 4  | ECE2005     | Optoelectronics                                 | LT   | 3  | ECE3010     | Information Theory and Coding     | LT   | 3  | ECE3012                       | Electronic Measurements and Instrumentation  | LT   | 3  |
| CSE3003     | Operating Systems                      | LTP  | 4  | ECE3009     | Micro Electro Mechanical Systems                | LP   | 3  | ECE4016     | Pattern Recognition and Analytics | LP   | 3  | ECE2006                       | Debugging of Electronic Circuits and Systems | LP   | 3  |



|         | Semester 5                                   |      |           |         | Semester 6                                |      |           |         | Semester 7                                    |      |           |         | Semester 8           |      |           |
|---------|--|------|-----------|---------|---|------|-----------|---------|---|------|-----------|---------|----------------------|------|-----------|
|         | Course Title                                 | Type | Cr.       |         | Course Title                              | Type | Cr.       |         | Course Title                                  | Type | Cr.       |         | Course Title         | Type | Cr.       |
| STS1001 | Soft skills 1                                | P    | 1         | STS2001 | Soft skills 2                             | P    | 1         |         | Capstone Project -Phase1 (Zeroth Review only) | PJ   | 0         | ECE4099 | Capstone Project     | PJ   | 20        |
| EXCXXXX | Extra-Curricular activity                    | PJ   | 0         | EXCXXXX | Extra-Curricular activity                 | PJ   | 2         | ECE2097 | Internship                                    | PJ   | 2         |         |                      |      |           |
| ECE3099 | Engineering Projects in Community Service    | PJ   | 0         | ECE3099 | Engineering Projects in Community Service | P    | 2         | ECE4098 | Comprehensive Exam                            | PJ   | 2         |         |                      |      |           |
| ECE4003 | Digital Communication Systems                | LP   | 3         | CSE3006 | Computer Networks                         | LTP  | 4         |         | Engineering Elective 6                        | LT   | 3         |         |                      |      |           |
| ECE3005 | Digital Signal Processing                    | LTP  | 4         | ECE4005 | Wireless and Mobile Communication         | LT   | 3         |         | Engineering Elective 7                        | LT   | 3         |         |                      |      |           |
| ECE3006 | VLSI Design                                  | LP   | 3         | ECE4004 | Microwave and optical communication       | LTP  | 4         |         | Open Elective 2                               | LT   | 2         |         |                      |      |           |
|         | Hum & management Elective - II(Placement -I) | LT   | 4         |         | Engineering Elective 4                    | LT   | 3         |         | Open Elective 3                               | LT   | 2         |         |                      |      |           |
|         | Hum & management Elective – III              | LT   | 2         |         | Engineering Elective 5                    | LT   | 3         |         |   |      |           |         |                      |      |           |
|         | Engineering Elective 3                       | LT   | 3         |         | Open Elective1 (Placement -2)             | LT   | 2         |         |   |      |           |         |                      |      |           |
| MAT3004 | Random Processes                             | LT   | 3         |         |   |      |           |         |   |      |           |         |                      |      |           |
|         | <b>Total credits</b>                         |      | <b>23</b> |         | <b>Total credits</b>                      |      | <b>24</b> |         | <b>Total credits</b>                          |      | <b>14</b> |         | <b>Total credits</b> |      | <b>20</b> |

