# B.N.M Institute of Technology

**An Autonomous Institution Under VTU**
**Approved by AICTE, Accredited as Grade A Institution by NAAC.**
**All UG branches – CSE, ECE, EEE, ISE & Mech.E Accredited by NBA for academic years 2018-19 to 2024-25 & valid upto 30.06.2025**
Post box no. 7087, 27th cross, 12th Main, Banashankari 2nd Stage, Bengaluru- 560070, INDIA
Ph: 91-80- 26711780/81/82 Email: principal@bnmit.in, www. bnmit.org

## Department of Electrical and Electronics Engineering

## Proposed 2021 Scheme for Autonomous Program

### Summary of Semester wise Credits and Contact hours

| Sl. No. | Semester | Credits | Contact hours |
|---|---|---|---|
| 1 | 1 | 20 | 29 |
| 2 | 2 | 20 | 29 |
| 3 | 3 | 22 | 32 |
| 4 | 4 | 21 | 32 |
| 5 | 5 | 22 | 31 |
| 6 | 6 | 23 | 30 |
| 7 | 7 | 16 | 22 |
| 8 | 8 | 17 | 31 |
| | Total | 161 | 236 |

**Semester: III EEE**

| Sl. No. | Course and Course code | | Course Title | Teaching Department | Teaching Hours/week | | | | | Credits | Examination | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical | Project | Total Hours | | CIA | SEA | Total |
| | | | | | L | T | P | J | | | | | |
| 1 | BSC | 21MAC131 | Fourier Series, Transforms, Numerical and Statistical Techniques | Mathematics | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| 2 | PCC | 21EEE132 | Generation, Transmission and Distribution | EEE | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| 3 | PCC | 21EEE133 | Network Analysis | EEE | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| 4 | PCI | 21EEE134 | Transformers and Induction Motors | EEE | 3 | -- | 2 | -- | 5 | **4** | 50 | 50 | 100 |
| 5 | PCI | 21EEE135 | Analog and Digital Electronics | EEE | 3 | -- | 2 | -- | 5 | **4** | 50 | 50 | 100 |
| **6** | PBL | 21EEE136 | Python Programming for Electrical Engineers | EEE | -- | -- | 2 | 2 | 4 | **2** | 50 | 50 | 100 |
| 7 | HSS | 21KAN1371/ 21KAN1372 | Samskruthika Kannada/Balake Kannada | HSS | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| 8 | AEC | 21SFT138 | Soft Skills -1 | HSS | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| 9 | IPL | 21EEE139 | Innovative Project Lab | EEE | -- | -- | -- | 2 | 2 | **1** | 100 | -- | 100 |
| | | | Total | | 12 | 10 | 6 | 4 | 32 | **22** | 600 | 300 | 900 |

**++ L-Theory lecture, T – Tutorial, P – Practical, J – Project**

CIA: Continuous Internal Assessment, SEE: Semester End Assessment, NCMC: Non-Credit Mandatory Course

**AICTE Activity points to be earned by students admitted to BE day college programme**

Over and above the academic grades, every day college regular student admitted to the 4 year Degree programme and every student entering 4 years degree programme though lateral entry, shall earn 100 and 75 activity points respectively for the award of degree through AICTE activity programme. The activities can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, minimum hour's requirement should be fulfilled. Activity points have no effect on SGPA/CGPA and shall not be considered for vertical progression.

**Audit Course:** All lateral entry students have to register and complete course on Additional Mathematics- 1

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BSC | 21MATDIP131 | Bridge Mathematics -I | Mathematics | 3 | -- | -- | -- | 3 | NCMC | 100 | -- | 100 |

***-Additional Mathematics for Lateral entry students**

**Semester: IV EEE**

| Sl. No. | Course and Course code | | Course Title | Teaching Department | Teaching Hours/week | | | | | Credits | Examination | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Training | Project | Total Hours | | CIA | SEA | Total |
| | | | | | L | T | P | J | | | | | |
| 1 | BSC | 21MAC141 | Complex Analysis, Probability and Random Process | Mathematics | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| 2 | PCC | 21EEE142 | Linear Control Systems | EEE | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| 3 | PCI | 21EEE143 | Electrical Motors and Synchronous Machines | EEE | 3 | -- | 2 | -- | 5 | **4** | 50 | 50 | 100 |
| 4 | PCI | 21EEE144 | Power Electronic Devices and Circuits | EEE | 3 | -- | 2 | -- | 5 | **4** | 50 | 50 | 100 |
| **5** | PBL | 21EEE145 | Simulation of Electrical and Electronic Circuits | EEE | -- | -- | 2 | 2 | 4 | **2** | 50 | 50 | 100 |
| 6 | HSS | 21CIP146 | Constitution of India and Professional Ethics | HSS | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| 7 | EVS | 21EVS147 | Environmental Studies | HSS | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| 8 | AEC | 21SFT148 | Soft Skills - 2 | HSS | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| 9 | INT | 21EEE149 | Internship- 1 / Innovative Project Lab | EEE | -- | -- | 2 | 2 | 4 | **2** | 100 | -- | 100 |
| | | | Total | | 10 | 10 | 8 | 4 | 32 | **21** | 650 | 250 | 900 |

**Audit Course:** All lateral entry students have to register and complete course on Additional Mathematics- 2

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BSC | 21MATDIP141 | Bridge Mathematics -II | Mathematics | 3 | -- | -- | -- | 3 | NCMC | 100 | -- | 100 |

**Internship:** All the students registered to II year of BE shall have to undergo mandatory internship of 4 weeks during II semester or III semester vacation. Semester End Assessment will be conducted in IV semester and the prescribed credit will be included. Internship shall be considered as a head of passing and shall be considered for the award of degree.

**AICTE Activity points to be earned by students admitted to BE day college programme**

Over and above the academic grades, everyday college regular student admitted to the 4 year Degree programme and every student entering 4 years degree programme though lateral entry, shall earn 100 and 75 activity points respectively for the award of degree through AICTE activity programme. The activities can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, minimum hour's requirement should be fulfilled. Activity points have no effect on SGPA/CGPA and shall not be considered for vertical progression.

**Semester: V EEE**

| Sl. No. | Course and Course code | | Course Title | Teaching Department | Teaching Hours/week | | | | | Credits | Examination | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Training | Project | Total Hours | | CIA | SEA | Total |
| | | | | | L | T | P | J | | | | | |
| 1 | PCC | 21EEE151 | Power System Analysis and Stability | EEE | 2 | 2 | | | 4 | **3** | 50 | 50 | 100 |
| 2 | PCC | 21EEE152 | Electromagnetic Fields and Wave Theory | EEE | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| *3* | PCI | 21EEE153 | Introduction to AI & ML | EEE | 3 | -- | 2 | -- | 5 | **4** | 50 | 50 | 100 |
| 4 | PCI | 21EEE154 | Digital Signal Processing | EEE | 3 | -- | 1 | 1 | 5 | **4** | 50 | 50 | 100 |
| 5 | PBL | 21EEE155 | Modeling and Simulation of Power Electronic Systems using MATLAB | EEE | -- | -- | 2 | 2 | 4 | **2** | 50 | 50 | 100 |
| 6 | POE | 21EEE1561 | Energy Audit and Energy Management System | EEE | 3 | -- | -- | -- | 3 | **3** | 50 | 50 | 100 |
| | | 21EEE1562 | Non-Conventional Energy Resources | | | | | | | | | | |
| | | 21EEE1563 | Fundamentals of Electric and Hybrid Vehicles | | | | | | | | | | |
| | | 21EEE1564 | Sensors and Transducers | | | | | | | | | | |
| 7 | AEC | 21EEE157 | Employability Skills -1 (Technical) | T & P | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| 8 | INT | 21EEE158 | Internship- 2 | EEE | -- | -- | 4 | -- | 4 | **2** | 100 | -- | 100 |
| | | | Total | | 13 | 6 | 9 | 3 | 31 | **22** | 500 | 300 | 800 |

**Internship:** All the students registered to III year of BE shall have to undergo mandatory internship of 4 weeks during IV semester vacation. Semester End Assessment will be conducted in V semester and the prescribed credit will be included. The internship shall be slated for CIE only and will not have SEE Internship shall be considered as a head of passing and shall be considered for the award of degree. Internship of 04 weeks during the intervening period of IV and V semesters; The letter grade earned through CIE shall be included in the VI semester grade card. Those, who do not take up / complete the internship shall be considered under F(fail) grade and shall have to complete subsequently after satisfying the internship requirements.

**AICTE Activity points to be earned by students admitted to BE day college programme**

Over and above the academic grades, every day college regular student admitted to the 4 year Degree programme and every student entering 4 years degree programme though lateral entry, shall earn 100 and 75 activity points respectively for the award of degree through AICTE activity programme. The activities can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, minimum hour's requirement should be fulfilled. Activity points have no effect on SGPA/CGPA and shall not be considered for vertical progression.

**Semester: VI EEE**

| Sl. No. | Course and Course code | | Course Title | Teaching Department | Teaching Hours/week | | | | | Credits | Examination | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Theory Lecture | Tutorial | Practical/ Training | Project | Total hours | | CIA | SEA | Total |
| | | | | | L | T | P | J | | | | | |
| 1 | PCC | 21EEE161 | Power System Protection | EEE | 2 | 2 | -- | -- | 4 | **3** | 50 | 50 | 100 |
| 2 | PCI | 21EEE162 | Computer Techniques in Power System | EEE | 2 | 2 | 2 | -- | 6 | **4** | 50 | 50 | 100 |
| 3 | PCI | 21EEE163 | High Voltage Engineering | EEE | 3 | -- | 2 | - | 5 | **4** | 50 | 50 | 100 |
| 4 | PBL | 21EEE164 | Microcontrollers and IOT | EEE | **--** | **--** | 2 | 2 | 4 | **2** | 50 | 50 | 100 |
| 5 | PEC | 21EEE1651 | Renewable Energy Sources | EEE | 3 | -- | -- | -- | 3 | **3** | 50 | 50 | 100 |
| | | 21EEE1652 | Sensors and Transducers | | | | | | | | | | |
| | | 21EEE1653 | Fundamentals of Electric and Hybrid Electric Vehicles | | | | | | | | | | |
| | | 21EEE1654 | Embedded System | | | | | | | | | | |
| | | 21EEE1655 | Introduction to UNIX Programming | | | | | | | | | | |
| | | 21EEE1656 | AI techniques applied to electrical systems | | | | | | | | | | |
| | | 21EEE1657 | Strategic Management | | | | | | | | | | |
| 6 | PEC (MOOC) | 21EEE1661 | Power system operation and control | EEE | 3 | -- | -- | -- | 3 | **3** | 50 | 50 | 100 |
| | | 21EEE1662 | Industrial Drives and Automation | | | | | | | | | | |
| | | 21EEE1663 | Battery Technology and Battery Management System | | | | | | | | | | |
| | | 21EEE1664 | Principles of Fuzzy Logic | | | | | | | | | | |
| | | 21EEE1665 | Computer Organization | | | | | | | | | | |
| | | 21EEE1666 | Web Programming using JAVA | | | | | | | | | | |
| | | 21EEE1667 | Digital Marketing | | | | | | | | | | |
| 7 | POE | 21EEE1671 | PLC and SCADA | EEE | 3 | -- | -- | -- | 3 | **3** | 50 | 50 | 100 |
| | | 21EEE1672 | Fuel Cell Technology | | | | | | | | | | |
| | | 21EEE1673 | Industrial Motor control and Automation | | | | | | | | | | |
| | | 21EEE1674 | Solar Photo Voltaic Systems | | | | | | | | | | |
| 8 | AEC | 21EEE168 | Employability Skills – 2 (Technical) | T & P | -- | 2 | -- | -- | 2 | **1** | 100 | -- | 100 |
| | | | Total | | 16 | 4 | 8 | 2 | 30 | **23** | 450 | 350 | 800 |
| | | | | | | | | | | | | | |