B.N.M Institute of Technology

An Autonomous Institution Under VTU

Department of Electrical and Electronics Engineering

Proposed 2025 Scheme for Autonomous Program

Summary of Semester wise Credits

Sl. No.	Semester	Credits
1	1	20
2	2	20
3	3	22
4	4	20
5	5	22
6	6	23
7	7	16
8	8	17
Total		**160**

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	25MAE131	Fourier Series, Transforms and Statistical Techniques	Mathematics	2	2	--	--	4	**3**	50	50	100
2	PCC	25EEE132	Generation, Transmission and Distribution	EEE	2	2	--	--	4	**3**	50	50	100
3	PCC	25EEE133	Network Analysis	EEE	2	2	--	--	4	**3**	50	50	100
4	PCI	25EEE134	Transformers and Induction Motors	EEE	3	--	2	--	5	**4**	50	50	100
5	PCI	25EEE135	Analog and Digital Electronics	EEE	3	--	2	--	5	**4**	50	50	100
6	PBL	25EEE136	Data Structures Using C	EEE	--	2	1	1	4	**2**	50	50	100
7	HSS	25CIP137	Constitution of India and Professional Ethics	HSS	1	--	--	--	1	**1**	100	--	100
8	AEC	25SFT138	Soft Skills -1	T & P	--	2	--	--	2	**1**	100	--	100
9	IPL	25EEE139	Innovative Project Lab (Social Concern)	EEE	--	--	--	2	2	**1**	100	--	100
			Total		13	10	5	3	31	**22**	600	300	900

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

CIA: Continuous Internal Assessment, SEA: 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.

Bridge Course: All lateral entry students have to register and complete the course **Fundamentals of C programming** and submit the assignment to the concerned teacher handling the course **Data structures using C**.

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	25MAE141	Complex Analysis, Probability and Random Process	Mathematics	2	2	--	--	4	**3**	50	50	100
2	PCC	25EEE142	Electromagnetic Fields and Wave Theory	EEE	2	2	--	--	4	**3**	50	50	100
3	PCI	25EEE143	Electrical Motors and Synchronous Machines	EEE	3	--	2	--	5	**4**	50	50	100
4	PCI	25EEE144	Linear Control Systems	EEE	3	--	2	--	5	**4**	50	50	100
5	PBL	25EEE145	ARM processors and Applications	EEE	--	2	1	1	4	**2**	50	50	100
6	PCC	25EEE146	Data Base Management System	EEE	1	2	--	--	3	**2**	50	50	100
7	INT	25EEE147	Internship-1/Innovative Project Lab	EEE	--	--	2	2	4	**1**	100	--	100
8	AEC	25SFT148	Soft Skills - 2	T & P	--	2	--	--	2	**1**	100	--	100
			Total		11	10	7	3	**31**	**20**	500	300	800

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. Continuous Internal Assessment (CIA) 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	25EEE151	AI & ML applications in Electrical systems	EEE	2	2			4	**3**	50	50	100
2	PCC	25EEE152	Digital Signal Processing	EEE	2	2	--	--	4	**3**	50	50	100
3	PCI	25EEE153	Real Time Operating System	EEE	2	--	4	--	6	**4**	50	50	100
4	PCI	25EEE154	Power Electronic Devices and Circuits	EEE	3	--	2	--	5	**4**	50	50	100
5	PBL	25EEE155	Design of digital controllers using Programmable Logic Controller	EEE	--	2	1	1	4	**2**	50	50	100
6	POE	25EEE156X	Open Elective course	EEE	2	2	--	--	4	**3**	50	50	100
7	AEC	25EEE157	Employability Skills -1 (Technical)	T & P	--	2	--	--	2	**1**	100	--	100
8	INT	25EEE158	Internship- 2	EEE	--	--	4	--	4	**2**	100	--	100
			Total		11	10	11	1	33	**22**	500	300	800

Open Elective Course			
25EEE1561	Energy Audit and Energy Management System	25EEE1563	Fundamentals of Hybrid and Electric Vehicles
25EEE1562	Non-Conventional Energy Resources	25EEE1564	Sensors and Transducers

Internship: All the students registered to III year of BE shall have to undergo mandatory internship of 4 weeks during IV semester vacation. Continuous Internal Assessment will be conducted in V semester and the prescribed credit will be included. The internship shall be slated for CIA only and will not have SEA. 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 V 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	25EEE161	Object Oriented Programming using Java	EEE	2	2	--	--	4	**3**	50	50	100
2	PCI	25EEE162	Computer Techniques in Power System	EEE	2	2	2	--	6	**4**	50	50	100
3	PCI	25EEE163	High Voltage & Power System Protection	EEE	3	--	2	-	5	**4**	50	50	100
4	PBL	25EEE164	Simulation of Electric vehicle and Alternate energy systems	EEE	--	--	2	2	4	**2**	50	50	100
5	PEC	25EEE165X	Professional Elective Course	EEE	3	--	--	--	3	**3**	50	50	100
6	PEC (Online Courses)	25EEE166X	Professional Elective (online Courses)	EEE	3	--	--	--	3	**3**	50	50	100
7	POE	25EEE167X	Open Elective course	EEE	2	2	--	--	4	**3**	50	50	100
8	AEC	25EEE168	Employability Skills – 2 (Technical)	T & P	--	2	--	--	2	**1**	100	--	100
			Total		15	8	6	2	31	**23**	450	350	800

Professional Elective Courses			
25EEE1651	Renewable Energy Sources	25EEE1655	Introduction to UNIX Programming
25EEE1652	Energy Audit and Energy Management System	25EEE1656	Fuzzy Logic and its applications
25EEE1653	Fundamentals of Electric and Hybrid Electric Vehicles	25EEE1657	Strategic Management
25EEE1654	Embedded Systems		

Professional Elective Courses (Online Courses)			
25EEE1661	DC Microgrids and Control	25EEE1665	Cyber Security and Privacy
25EEE1662	Industrial Automation and Drives	25EEE1666	Data Mining
25EEE1663	Advanced Power electronics Design	25EEE1667	Digital Marketing
25EEE1664	Industrial Internet of Things		

Open Elective Courses			
25EEE1671	PLC and SCADA	25EEE1673	Industrial Motor control and Automation
25EEE1672	Fuel Cell Technology	25EEE1674	Solar Photo Voltaic Systems

Semester: VII 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	25EEE171	Engineering project Management and Finance	EEE	3	--	--	--	3	**3**	50	50	100
2	PEC	25EE172X	Professional Elective Course	EEE	3	--	--	--	3	**3**	50	50	100
3	PEC (Online Courses)	25EEE173X	Professional Elective (online Courses)	EEE	3	--	--	--	3	**3**	50	50	100
4	AEC	25EEE174	Research Methodology and IPR	EEE	1	2	--	--	3	**2**	50	50	100
5	PPW	25EEE175	Main Project- Phase 1	EEE	--	--	--	10	10	**5**	50	50	100
			Total		10	2	--	10	22	**16**	250	250	500

Professional Elective Courses			
25EEE1721	Electrical Estimation and Costing	25EEE1725	Data Visualization
25EEE1722	Utilization of Electrical Power	25EEE1726	ANN and its applications to Electrical Systems
25EEE1723	Advanced Techniques in Electric Vehicles	25EEE1727	Accounts & Financing for Engineers
25EEE1724	Digital Design through Verilog		

Professional Elective Courses (Online Courses)			
25EEE1731	Advances in UHV Transmission and Distribution	25EEE1735	Big Data Computing
25EEE1732	Digital Control systems for Industrial applications	25EEE1736	Deep Learning
25EEE1733	Charging Infrastructure	25EEE1737	Operations and Supply Chain Management
25EEE1734	Drone Systems and Control		

Project work: Based on the abilities of the students and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

Semester: VIII 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	PEC (Online Courses)	25EEE181X	Professional Elective (online Courses)	EEE	3	--	--	--	3	**3**	50	50	100
2	INT	25EEE182	Internship-3	EEE	--	--	8	--	8	**4**	50	50	100
3	PPW	25EEE183	Main Project Work- Phase 2	EEE	--	--	--	20	20	**10**	50	50	100
			Total		3	--	8	20	31	**17**	150	150	300

Professional Elective Courses (Online Courses)			
25EEE1811	Smart Grid	25EEE1815	Blockchain and its Applications
25EEE1812	Computer-Aided Design of Electrical Machines	25EEE1816	Natural Language Processing
25EEE1813	Battery Technology and Battery Management System	25EEE1817	Business Analytics for Management Decision
25EEE1814	VLSI Design		

Project work: Based on the abilities of the students and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

Internship: All the students admitted to IV year of BE shall have to undergo mandatory internship of 16 weeks during the vacation of VI semester and during VII semester. End Assessment will be conducted in VIII semester and the prescribed credit shall 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, 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.

Professional Elective courses: (PEC)

I.	**Power engineering stream: PE**	**V.**	**Information Technology – IT**
25EEE1651	Renewable Energy Sources (Professional Elective Course)	25EEE1655	Introduction to UNIX Programming (Professional Elective Course)
25EEE1661	DC Microgrids and Control (MOOC)	25EEE1665	Cyber Security and Privacy (MOOC)
25EEE1721	Electrical Estimation and Costing (Professional Elective Course)	25EEE1725	Data Visualization
25EEE1731	Advances in UHV Transmission and Distribution (MOOC)	25EEE1735	Big Data Computing (MOOC)
25EEE1811	Smart Grid (MOOC)	25EEE1815	Blockchain and its Applications (MOOC)
II.	**Industrial Automation and Drives: IAD**	**VI.**	**AI & ML stream: AI**
25EEE1652	Energy Audit and Energy Management System (Professional Elective Course)	25EEE1656	Fuzzy Logic and its applications (Professional Elective Course)
25EEE1662	Industrial Drives and Automation (MOOC)	25EEE1666	Data Mining (MOOC)
25EEE1722	Utilization of Electrical Power (Professional Elective Course)	25EEE1726	ANN and its applications to Electrical Systems (Professional Elective Course)
25EEE1732	Digital Control systems for Industrial applications (MOOC)	25EEE1736	Deep Learning (MOOC)
25EEE1812	Computer-Aided Design of Electrical Machines (MOOC)	25EEE1816	Natural Language Processing (MOOC)
III.	**Electric vehicle stream: EV**	**VII.**	**Management Stream:**
25EEE1653	Fundamentals of Electric and Hybrid Electric Vehicles (Professional Elective Course)	25EEE1657	Strategic Management (Professional Elective Course)
25EEE1663	Advanced Power electronics Design (MOOC)	25EEE1667	Digital Marketing (MOOC)
25EEE1723	Advanced Techniques in Electric Vehicles (Professional Elective Course)	25EEE1727	Accounts & Financing for Engineers (Professional Elective Course)
25EEE1733	Charging Infrastructure (MOOC)	25EEE1737	Operations and Supply Chain Management (MOOC)
25EEE1813	Battery Technology and Battery Management System (MOOC)	25EEE1817	Business Analytics for Management Decision (MOOC)
IV.	**VLSI and Embedded Systems: VES**		
25EEE1654	Embedded Systems and IoT (Professional Elective Course)		
25EEE1664	Industrial Internet of Things (MOOC)		
25EEE1724	Digital Design through Verilog (Professional Elective Course)		
25EEE1734	Drone Systems and Control (MOOC)		
25EEE1814	VLSI Design (MOOC)		

Open Elective -1 (V semester)			**Open Elective – 2 (VI semester)**
25EEE1561	1. Energy Audit and Energy Management System	25EEE1671	1. PLC and SCADA
25EEE1562	2. Non-Conventional Energy Resources	25EEE1672	2. Fuel Cell Technology
25EEE1563	3. Fundamentals of Electric and Hybrid Vehicles	25EEE1673	3. Industrial Motors and Control
25EEE1564	4. Sensors and Transducers	25EEE1674	4. Solar Photo Voltaic Systems