TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology

Mohgaon, Wardha Road, Nagpur - 441 108

An Autonomous Institute

DEPARTMENT OF ELECTRICAL ENGINEERING

B.Tech. Electrical Engineering

Teaching Scheme

Considering

National Education Policy 2020

From

Academic Year 2024-25

Vision of Institute

To emerge as a learning Center of Excellence in the National Ethos in domains of Science, Technology and Management.

Mission of Institute

1. To strive for rearing standard and stature of the students by practicing high standards of professional ethics, transparency and accountability.
2. To provide Facilities and services to meet the challenges of industry and society.
3. To facilitate socially responsive research, innovation and entrepreneurship.
4. To ascertain holistic development of the students and staff members by inculcating knowledge and profession as work practices.

Vision of the Department

To emerge as a learning hub and center of excellence in the domain of Electrical Engineering.

Mission of the Department

1. To disseminate knowledge replete with quality education in the field of Electrical Engineering in meticulous and methodical manner.
2. To provide platform to address societal issues as well as challenges faced by industries.
3. To developer search culture and inculcate innovative and entrepreneurial kills.
4. To ensure overall development of students and staff by instilling knowledge and professional ethics as a part of lifelong learning.

Program Outcomes (PO)

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of Complex Problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data,and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and software tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit professional ethics, responsibilities, and norms of the engineering practice.
9. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Lifelong learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Program Specific Outcomes (PSO)

PSO1: Formulate the solutions to Electrical and Electronics Engineering problems using the basic concepts.

PSO2: Develop the process to interpret networks parameters in power system operation and control with their protection and driving mechanisms.

PSO3: Apply project-based learning to conduct experiments with Electrical Machines, Power Electronics to develop energy efficient system

Program Education Objectives (PEO)

1. Demonstrate and analyze the fundamental knowledge with respect to the various domains of Electrical Engineering.
2. Investigate and apply modern tools to develop innovativeness in different applications of Electrical Engineering domain.
3. Integrate new emerging trends and concepts in Electrical Engineering profession for sustainable development.
4. Develop professionals with managerial and administrative qualities for electrical engineering-related industries.
5. Promote lifelong learning, to prepare for the next challenges in the field of Electrical Engineering.

Tulsiramji Gaikwad-Patil College of Engineering and Technology

Wardha Road, Nagpur-441108 Accredited with NAAC A+ Grade
Approved by AICTE ,New Delhi, Govt. of Maharashtra
(An Autonomous Institution Affiliated to RTM Nagpur University)

Scheme of Instruction for First Year of B.Tech.(UG)Programme
Group-B Semester- IEE/ME/CE/AE/BT

Mandatory03-WeeksInductionProgramintheFirstSemesterforeverystudent

SN	Sem	Type	BoS/ Deptt	Sub. Code	Subject	T/P	Contact Hours L	SL	P	Hrs	Credits	%Weightage CT/IA	CA	ESE	ESE Duration Hours
FIRSTSEMESTER(GROUP-B)															
1	1	BSC	S&H	BSH31101	Algebra and Calculus	T	4	2	0	6	4	30	10	60	3
2	1	BSC	S&H	BSH31104	Chemical Processing Engineering	T	3	2	0	5	3	30	10	60	3
3	1	BSC	S&H	BSH31105	Chemical Processing Engineering -Lab	P	0	0	2	2	1	25	-	25	-
4	1	ESC	CE/BT	BCE31101/BBT31101	Engineering Mechanics/ Fundament also Biotechnology	T	3	2	0	5	3	30	10	60	3
5	1	ESC	ME	BEE31101	Engineering Workshop	P	0	0	2	2	1	25	-	25	-
6	1	BSC	S&H	BSH31X08	Introduction to Indian Knowledge System	T	2	2	0	0	2	14	6	30	2
7	1	ESC	ME	BME31X01	Engineering and Computer Graphics Lab	P	0	0	2	2	1	25	-	25	-
8	1	PCC	EE/ME /CE/AE /BT	BEE31101/ BME31102/ BCE31102/ BAE31101/ BBT31102	Electrical Wiring and Installations/Computer Aided Design/ CAD for Civil Engineers/ CAD for Aircraft Component/Biotechnological Skill Lab	P	0	0	4	4	2	25	-	25	-
9	1	VSEC	CS	BCS31102	Web Designing	P	0	2	4	4	2	25	-	25	-
10	1	CC	S&H	BSH31X09	Business Communication	P		0	4	4	2	25	-	25	-
TOTALFIRSTSEM							12	10	18	34	21				
SECONDSEMESTER(GROUP-B)															
1	2	BSC	S&H	BSH31201	Differential Equation and Statistics	T	4	2	0	6	4	30	10	60	3
2	2	BSC	S&H	BSH31208	Quantum Physics &Optics	T	3	2	0	5	3	30	10	60	3
3	2	BSC	S&H	BSH31209	Quantum Physics & Optics-Lab	P	0	0	2	2	1	25	-	25	-
4	2	ESC	EE	BEE31202	Principles of Electrical Engineering	T	3	2	0	5	3	30	10	60	3
5	2	ESC	EE	BEE31203	Principles of Electrical Engineering-Lab	P	0	0	2	2	1	25	-	25	-
6	2	ESC	IT	BIT31103	Programming for Problem Solving using 'C'	T	3	2	0	5	3	30	10	60	3
7	2	ESC	IT	BIT31104	Programming for Problem Solving using 'C'-Lab	P	0	0	2	2	1	25	-	25	-
8	2	VSEC	EE/ME /CE/AE /BT	BEE31204/ BME31201/ BCE31201/ BAE31201/ BBT31201	Power SIM / CNC Machine and Programming/Building Maintenance Lab/ Basics of Aircraft Design/Environmental Biotechnology Lab	P	0	0	4	4	2	25	-	25	-
9	2	AEC	S&H	BSH31X04	Communication for Personality Development-Lab	P	0	1	4	5	2	25	-	25	-
10	2	CC	S&H	BSH31X05	Integrated Personality Development Course-I	P	0	0	4	4	2	25	-	25	-
TOTALSECONDSEM							13	09	18	40	22				

Course Category	BSC/ESC (Basic Science Course/Engineering Science Course.)	PCC (ProgrammeCorecourses	Multidisciplinary course	VSEC (Skill Course)	Humanities Social Science &Management AEC(Ability Enhancement Course)	Humanities Social Science &Management IKS(Indian Knowledge System)	Experiential Learning Courses	CC(Co-Curricular Courses)
Credits SEM-I	08/05	02	--	02	--	02	--	02
Credits SEM-II	08/08	--	--	02	02	--	--	02
Cumulative Sum	16/13	02	--	04	02	02	--	04

PROGRESSIVETOTALCREDITS:21+22=43

			Aug,2023	1.00	Applicable for AY 2023-24 Onwards
Chairperson	Dean Academics	Vice Principal	Principal	Date of Release	Version

NAGPUR

HOD
Department Of Electrical Engineering
Tulsiramji Gaikwad - Patil College
Of Engineering And Technology
Nagpur

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION &SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: First Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Exit option: Award of UG Certificate in Major after the completion of 43 credits and additional 8 credits.						
Sr. No	**Course Code**	**Course Title**	**Lecture**	**Tutorial**	**Practical**	**Credits**
1	BEE32307	Renewable energy sources **OR** Equivalent MOOC course approved by the Department	3	-	-	3
2	BEE32308	Power Station Practice **OR** Equivalent MOOC course approved by the Department	3	-	-	3
3	BEE32309	Internship	Four weeks			2
OR						
1	BEE32310	Project/ Internship/On-Job Training (OJT)	--			8

Project: Identify problem. Review literature to understand current solutions, Design, simulate, or prototype a potential and innovative solution, Work independently or in teams under faculty supervision, Prepare a Project Report.

Internship: Join Internship in an industry, research institution, or government agency, Learn by observing and from current projects, processes, and equipment, Perform assigned work or mini-projects, Keep a daily/weekly log of work and learning activities, Write an internship report.

On-Job Training (OJT): Work full-time in an industry environment. Execute assigned tasks like a junior engineer. Submit regular progress reports and a final OJT report.

Chairman

Dean Academics

19/05/25

Dr. Premanand Naktode
Principal
TGPCET, Nagpur

HOD
Department of Engineering
Tulsiramji Gaikwad-Patil College
Of Engineering & Technology
Nag

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEMEOFINSTRUCTION& SYLLABI

Programme: Electrical Engineering(NBA Accredited)

Scheme of Instructions: Second Year B.Tech. in Electrical Engineering (As Per NEP2020)

Semester– III

SN	Sem	Type	BoS / Dept	Sub Code	Subject	T/P	Contact Hours			Credits	% Weightage			ESE Duration	Total Marks
							L	P	Hrs		CT/IA	CA	ESE		
1	III	PCC	EE	BEE32301	Electric Circuits Analysis	T	3	-	3	3	30	10	60	3 Hrs	100
2	III	PCC	EE	BEE32302	Electrical & Electronic Measurements	T	3	-	3	3	30	10	60	3 Hrs	100
3	III	OEC	EE	B$$323XX	Open Elective-I	T	4	-	4	4	30	10	60	3 Hrs	100
4	III	EEMC	BA	BBA32302	Entrepreneurship& Skill Development	T	2	-	2	2	14	6	30	2 Hrs	50
5	III	VEC	SH	BSH2308	Ethics in Engineering Practice	T	2	-	2	2	14	6	30	2 Hrs	50
6	III	MDM	SH	BSH32305	Transformation and its Series	T	2	-	2	2	14	6	30	2 Hrs	50
7	III	PCC	EE	BEE32303	Electrical Circuit Analysis Lab	P	-	2	2	1	-	25	25	2 Hrs	50
8	III	PCC	EE	BEE32304	Electrical & Electronic Measurements Lab	P	-	2	2	1	-	25	25	2 Hrs	50
9	III	CEP	EE	BEE32306	Community Workshops &Training	P	-	4	4	2	-	50	-	2 Hrs	50
Total							**16**	**08**	**24**	**20**	**132**	**148**	**320**	**21 Hrs**	**600**

Course Category	BSC/ESC(Basic Science Course/ Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	Multidisciplinary courses	SEC(Skill Course)	Humanities Social Science &Management	Experiential Learning Courses	CC (Liberal Learning Courses
Credits	--	08	--	06	--	04	02	--
Cumulative Sum	16/13	11	--	06	04	08	02	04

PROGRESSIVETOTALCREDITS:43+20=63

Tulsiramji Gaikwad Patil College Of Engineering And Technology NAGPUR

HOD
Department Of Electrical Engineering
Tulsiramji Gaikwad - Patil College
Of Engineering And Technology
Nagpur

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: Second Year B.Tech. in Electrical Engineering (As PerNEP2020)

Semester– IV

SN	Sem	Type	BoS/ Dept	Sub Code	Subject	T/P	Contact Hours			Credits	% Weightage			ESE Duration	Total Marks
							L	P	Hrs		CT/IA	CA	ESE		
1	IV	PCC	EE	BEE32401	Electromagnetic Fields	T	3	-	3	3	30	10	60	3 Hrs	100
2	IV	PCC	EE	BEE32402	Transformer and DC Machine	T	3	-	3	3	30	10	60	3 Hrs	100
3	IV	PCC	EE	BEE32403	Introduction to Power System	T	3	-	3	3	30	10	60	3 Hrs	100
4	IV	OEC	EE	B$$324XX	Open Elective-II	T	2	-	2	2	15	5	30	2 Hrs	50
5	IV	VEC	EE	BEE32404	Leadership and Team Dynamics	P	-	4	4	2	-	25	25	2 Hrs	50
6	IV	VSEC	EE	BEE32406	1. PLC Programming 2. AUTOCAD Electrical(with Geo Coordinate Mapping) 3. MATLAB	P	-	4	4	2	-	25	25	2 Hrs	50
7	IV	PCC	EE	BEE32407	Transformer and DC Machine	P	-	2	2	1	-	25	25	2 Hrs	50
8	IV	AEC	CE	BCE32408	Sustainable Development Goals	T	2	-	2	2	15	5	30	2 Hrs	50
9	IV	EEMC	BA	BBA32409	Managerial Economics	T	2	-	4	2	15	5	30	2 Hrs	50
10	IV	MDM	CSE	BCS32411	Python Coding Lab	P	-	4	4	2	-	25	25	2 Hrs	50
Total							15	14	31	22	135	145	370	23 Hrs	650

Course Category	BSC/ESC(Basic Science Course/ Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	Multidisciplinary courses	SEC(Skill Course)	Humanities Social Science &Management	Experiential Learning Courses	CC (Liberal Learning Courses
Credits	--	10	--	04	02	06	--	--
Cumulative Sum	16/13	19	--	10	06	14	02	04

PROGRESSIVE TOTAL CREDITS:63+22=85

Tulsiramji Gaikwad Patil College Of Engineering And Technology NAGPUR

HOD

Department Of Electrical Engineering

Tulsiramji Gaikwad-Patil College

Of Engineering And Technology

Nagpur

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION &SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: Second Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Exit option: Award of UG Diploma in Major after the completion of 85 credits and an additional 8 credit.						
Sr. No	**Course Code**	**Course Title**	**Lecture**	**Tutorial**	**Practical**	**Credits**
1	BEE33510	Energy Audit for Green Technology OR Equivalent MOOC course approved by the Department	3	-	-	3
2	BEE33511	Electrical System Protection OR Equivalent MOOC course approved by the Department	3	-	-	3
3	BEE33512	Internship	Four weeks			2
OR						
1	BEE33513	Project/ Internship/On-Job Training (OJT)	--			8

Project: Identify problem. Review literature to understand current solutions, Design, simulate, or prototype a potential and innovative solution, Work independently or in teams under faculty supervision, Prepare a Project Report.

Internship: Join Internship in an industry, research institution, or government agency, Learn by observing and from current projects, processes, and equipment, Perform assigned work or mini-projects, Keep a daily/weekly log of work and learning activities, Write an internship report.

On-Job Training (OJT): Work full-time in an industry environment. Execute assigned tasks like a junior engineer. Submit regular progress reports and a final OJT report.

Chairman

Department Of Electrical Engineering
Tulsiramji Gaikwad - Patil College
Of Engineering And Technology
Nagpur

Tulsiramji Gaikwad Patil College of Engineering And Technology NAGPUR

Dean Academics

19/05/2026

Principal

Dr. Premanand Naktode
Principal
TGPCET, Nagpur

Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: Third Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Semester– V

SN	Sem	Type	BoS/ Dept	Sub Code	Subject	T/P	Contact Hours			Credits	% Weightage			ESE Duration	Total Marks
							L	P	Hrs		CT/IA	CA	ESE		
1	V	PCC	EE	BEE33501	AC Machines	T	3	-	3	3	30	10	60	3 Hrs	100
2	V	PCC	EE	BEE33502	Control System Engineering	T	3	-	3	3	30	10	60	3 Hrs	100
3	V	PCC	EE	BEE33503	Power Electronics and Drives	T	3	-	3	3	30	10	60	3 Hrs	100
4	V	OEC	EE	B$$335XX	Open Elective–III	T	2	-	2	2	15	5	30	2 Hrs	50
5	V	PEC	EE	BEE33505-07	Program Elective-I	T	4	-	4	4	30	10	60	3 Hrs	100
6	V	PCC	PCC	BEE33508	AC Machine Lab	P	-	2	2	1	-	25	25	2 Hrs	50
7	V	PCC	PCC	BEE33509	Power Electronics and Drives Lab	P	-	2	2	1	-	25	25	2 Hrs	50
8	V	MDM	ECE	BEC33510	Digital Electronics and Microcontroller	T	3	-	3	3	30	10	60	3 Hrs	100
9	V	MDM	ECE	BEC33511	Digital Electronics and Microcontroller Lab	P	-	2	2	1	-	25	25	2 Hrs	50
Total							**18**	**6**	**24**	**21**	**165**	**130**	**405**	**23 Hrs**	**700**

Course Category	BSC/ESC(Basic Science Course/ Engineering Science Course.)	PCC (Programme Corecourses)	PEC (Programme Elective courses)	Multidisciplinary courses	SEC(Skill Course)	Humanities Social Science &Management	Experiential Learning Courses	CC (Liberal LearningCourses
Credits	--	11	04	06	--	--	--	--
Cumulative Sum	16/13	31	04	16	06	14	02	04

PROGRESSIVE TOTAL CREDITS:85+21=106

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEMEOFINSTRUCTION&SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: Third Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Semester– VI

SN	Sem	Type	BoS/ Dept	Sub Code	Subject	T/P	Contact Hours			Credits	% Weightage			ESE Duration	Total Marks
							L	P	Hrs		CT/IA	CA	ESE		
1	VI	PCC	EE	BEE33601	Power System Analysis	T	3	-	3	3	30	10	60	3 Hrs	100
2	VI	PCC	EE	BEE33602	Switchgear & Protection	T	3	-	3	3	30	10	60	3 Hrs	100
3	VI	VSEC	EE	BEE33603	1. ETAP 2. PV SYST	P	-	4	4	2	-	25	25	2 Hrs	50
4	VI	PEC	EE	BEE33604- 06	Program Elective-II	T	4	-	4	4	30	10	60	3 Hrs	100
5	VI	PEC	EE	BEE33607- 09	Program Elective-III	T	4	-	4	4	30	10	60	3 Hrs	100
6	VI	PCC	EE	BEE33610	Power System Analysis Lab	P	-	2	2	1	-	25	25	2 Hrs	50
7	VI	PCC	EE	BEE336011	Switchgear & Protection Lab	P	-	2	2	1	-	25	25	2 Hrs	50
8	VI	MDM	ME	BME33612	Introduction to Industry 4.0	T	2	-	2	2	15	5	30	2 Hrs	50
Total							**16**	**8**	**24**	**20**	**135**	**120**	**345**	**20 Hrs**	**600**

Course Category	BSC/ESC(Basic Science Course/ Engineering Science Course.)	PCC (Programme Corecourses)	PEC (Programme Elective courses)	Multidisciplinary courses	SEC(Skill Course)	Humanities Social Science &Management	Experiential Learning Courses	CC (Liberal Learning Courses
Credits	--	08	08	02	02	--	--	--
Cumulative Sum	16/13	39	12	18	08	14	02	04

PROGRESSIVETOTALCREDITS:106+20=126

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION &SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: Third Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Exit option :Award of B.Voc in Major after the completion of 134 credits and an additional 8 credits.						
Sr. No	**Course Code**	**Course Title**	**Lecture**	**Tutorial**	**Practical**	**Credits**
1	BEE34706	EHVAC & HVDC :Theory & Applications **OR** Equivalent MOOC course approved by the Department	3	-	-	3
2	BEE34707	Electrical Substation Design & Practices **OR** Equivalent MOOC course approved by the Department	3	-	-	3
3	BEE34708	Internship	Four weeks			2
OR						
1	BEE34709	Project/ Internship/On-Job Training (OJT)	--			8

Project: Identify problem. Review literature to understand current solutions, Design, simulate, or prototype a potential and innovative solution, Work independently or in teams under faculty supervision, Prepare a Project Report.

Internship: Join Internship in an industry, research institution, or government agency, Learn by observing and from current projects, processes, and equipment, Perform assigned work or mini-projects, Keep a daily/weekly log of work and learning activities, Write an internship report.

On-Job Training (OJT): Work full-time in an industry environment. Execute assigned tasks like a junior engineer. Submit regular progress reports and a final OJT report.

Chairman

HOD
Department Of Electrical Engineering
Tulsiramji Gaikwad-Patil College
Of Engineering And Technology
Nagpur

Dean Academics

19/07/25

Principal
Dr. Premanand Naktode
Principal
TGPCET, Nagpur

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: fourth Year B.Tech. in Electrical Engineering (As Per NEP2020)

Semester– VII

SN	Sem	Type	BoS/ Dept	Sub Code	Subject	T/P	Contact Hours			Credits	% Weight age			ESE Duration	Total Marks
							L	P	Hrs		CT/IA	CA	ESE		
1	VII	PCC	EE	BEE34701	Power Quality (MOOCs 12Week Course)	T	4	-	4	4	-	25	75	3 Hrs	100
2	VII	Internship/ OJT	EE	BEE34702	Internship/OnJob Training	P	-	24	24	12	-	50	50	2 Hrs	100
3	VII	PEC	EE	BEE34703-05	Program Elective–IV (MOOCs 12 Week Course)	T	4	-	4	4	15	5	30	2 Hrs	50
Total							8	24	34	20	15	80	155	10 Hrs	250

Course Category	BSC/ESC(Basic Science Course/ Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Electivecourses)	Multidisciplinary courses	SEC(Skill Course)	Humanities Social Science &Management	Experiential Learning Courses	CC (Liberal Learning Courses
Credits	--	04	02	02	--	--	12	--
Cumulative Sum	16/13	43	14	20	08	14	14	04

PROGRESSIVE TOTAL CREDITS:126+20=146

Tulsiramji Gaikwad-Patil College of Engineering &Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering(NBA Accredited)

Scheme of Instructions: fourth Year B.Tech. in Electrical Engineering (As Per NEP2020)

Semester–VIII

SN	Sem	Type	BoS/ Dept	Sub Code	Subject	T/P	Contact Hours			Credits	% Weightage			ESE Duration	Total Marks
							L	P	Hrs		CT/IA	CA	ESE		
1	VIII	PCC	EE	BEE34801	EHVAC & HVDC Transmission	T	4	-	4	3	30	10	60	3 Hrs	100
2	VIII	RM	ME	BME34802	Research Methodology	T	4	-	4	4	30	10	60	3 Hrs	100
3	VIII	Project	EE	BEE34803	Project	P	-	8	8	4	-	50	50	2 Hrs	100
4	VIII	PEC	EE	BEE34804-06	Program Elective-V	T	3	-	3	4	30	10	60	3 Hrs	100
5	VIII	PCC	EE	BEE34810	High Voltage Engineering Lab	P	-	2	2	1	-	25	25	2 Hrs	50
6	VIII	MDM	MBA	BBA34801	Project Management & Finance	T	4	-	4	4	30	10	60	3 Hrs	100
Total							**15**	**10**	**25**	**20**	**120**	**115**	**315**	**16 Hrs**	**550**

Course Category	BSC/ESC(Basic Science Course/ Engineering Science Course.)	PCC (Programme Core courses)	PEC (Programme Elective courses)	Multidisciplinary courses	SEC(Skill Course)	Humanities Social Science &Management	Experiential Learning Courses	CC (Liberal Learning Courses
Credits	--	04	04	04	--	--	04	04
Cumulative Sum	16/13	47	20	22	08	14	22	04

PROGRESSIVETOTALCREDITS:146+20=166

Tulsiramji Gaikwad Patil College Of Engineering And Technology NAGPUR

HOD
Department Of Electrical Engineering
Tulsiramji Gaikwad - Patil College
Of Engineering And Technology
Nagpur

Program: Electrical Engineering

List of **Program Electives** offered By Electrical Engineering Department (NBA Accredited)

Program Elective-I	Program Elective-II	Program Elective-III	Program Elective-IV	Program Elective-V
Semester V	**Semester VI**	**Semester VI**	**Semester VII**	**Semester VIII**
BEE33505-Solar Energy Utilization	**BEE33604**-Wind Energy Utilization	**BEE33607**-Biomass Energy and its Utilization	**BEE34703**–Technologies for Clean and Renewable Energy Production	**BEE3480**- Energy Audit and Management
BEE33506-Utilization of Electrical Energy	**BEE33605**–Power Plant Engineering	**BEE33608**-Electrical Distribution System	**BEE34704**-Elementsof Substation Design	**BEE34805**-Power System Operation & Control
BEE33507-High Voltage Engineering	**BEE33606**-FlexibleAC Transmission System	**BEE33609**–Electric Vehicles	**BEE34705**-Introduction to Smart Grid	**BEE34806**–Power System Deregulation

Program: Electrical Engineering

List of **Open Electives** offered By Electrical Engineering Department (NBA Accredited)

Open Elective-I	Open Elective-II	Open Elective-III
Semester-III	**Semester-IV**	**Semester-V**
BEE32303: Introduction to Renewable Energy Sources	**BEE32404**:Power Plant System	**BEE33504:** Energy Audit

Course Category	BSC (Basic Science Course)	ESC (Engineering Science Course.)	PCC (Programme Corecourses	PEC (Programme Elective courses)	Multidisciplinary courses	VSEC(Skill Course)	Humanities Social Science& Management	Experiential Learning Courses	CC(Liberal Learning Courses	Semester Wise Credits
Semester-I	08	04	02	--	--	02	02	--	02	**20**
Semester-II	08	08	--	--	--	02	02	--	02	**22**
Semester-III	--	--	08	--	06	01	04	02	--	**21**
Semester-IV	--	--	10	--	04	02	06	--	--	**22**
Semester-V	--	--	11	04	06	--	--	--	--	**21**
Semester-VI	--	--	08	08	02	02	--	--	--	**20**
Semester-VII	--	--	04	02	02	--	--	12	--	**20**
Semester-VIII	--	--	04	06	02	--	--	08	--	**20**
Cumulative Sum	16	12	47	20	**22**	08	18	22	04	**166**

Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: fourth Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Honors in (Electric Vehicles)

Sem	Course code	Course Name	Hours/week			Credits	Maximum Marks			ESE Duration (Hrs)
			L	T	P		Continual Assessment	End Sem Examination	Total	
III	BEE32311	Fundamentals of Electric Vehicle **OR** Equivalent MOOC course approved by the Department	3	-	-	3	40	60	100	3
IV	BEE32412	EV Motors and their Control **OR** Equivalent MOOC course approved by the Department	3	-	-	3	40	60	100	3
V	BEE33510	EV Energy Management and Charging Infrastructure **OR** Equivalent MOOC course approved by the Department	4	-	-	4	40	60	100	3
VI	BEE336015	EV Communication and Instrumentation **OR** Equivalent MOOC course approved by the Department	4	-	-	4	40	60	100	3
VII	BEE34702	EV Policies and Safety Aspects **OR** Equivalent MOOC course approved by the Department	4	-	-	4	40	60	100	3

Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur

(An Autonomous Institution Affiliated to RTM Nagpur University, Nagpur)

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering (NBA Accredited)

Scheme of Instructions: fourth Year B.Tech. in Electrical Engineering (As Per NEP 2020)

Minors in (Renewable Energy Sources)

Sem	Course code	Course Name	Hours/week			Credits	Maximum Marks			
			L	T	P		Continual Assessment	End Sem Examination	Total	ESE Duration (Hrs)
III	BEE32312	Solar Energy Utilization & its Applications **OR** Equivalent MOOC course approved by the Department	3	-	-	3	40	60	100	3
IV	BEE32413	Wind Energy Technology **OR** Equivalent MOOC course approved by the Department	3	-	-	3	40	60	100	3
V	BEE33511	Biomass Conversion and its Utilization **OR** Equivalent MOOC course approved by the Department	4	-	-	4	40	60	100	3
VI	BEE336016	Applied Geothermal Energy **OR** Equivalent MOOC course approved by the Department	4	-	-	4	40	60	100	3
VII	BEE34703	Industrial Energy Audit & Conservation **OR** Equivalent MOOC course approved by the Department	4	-	-	4	40	60	100	3

NAGPUR

Chairman

HOD
Department Of Electrical Engineering
Tulsiram... College
Of Engin... Technology

Dean Academics

Principal
Dr. Premanand Naktode
Principal
TGPCET, Nagpur