HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE
(DEEMED TO BE UNIVERSITY)

REGULATION 2022 A
(in line with NEP 2020)

B. TECH. ELECTRICAL AND ELECTRONICS ENGINEERING
With Specialization in Artificial Intelligence
CHOICE BASED CREDIT SYSTEM

MOTTO, VISION, MISSION AND VALUE STATEMENT OF INSTITUTE

Motto

To Make Every Man a Success and No Man a Failure.

Vision

To be an International Institute of Excellence, providing a conducive environment for education with a strong emphasis on innovation, quality, research and strategic partnership blended with values and commitment to society.

Mission

- To create an ecosystem for learning and world class research.
- To nurture a sense of creativity and innovation.
- To instill highest ethical standards and values with a sense of professionalism.
- To take up activities for the development of Society.
- To develop national and international collaboration and strategic partnership with industry and institutes of excellence.
- To enable graduates to become future leaders and innovators.

Value Statement

Integrity, Innovation, Internationalization

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION

To educate the students in the recent developments of emerging fields in Electrical and Electronics Engineering, to encourage research activities, innovative techniques and to develop managerial abilities so as to make them excel globally with ethical values.

MISSION

The Electrical and Electronics Engineering program continuously strives,

M1: To empower students with state-of-art knowledge and technological skills in Electrical and Electronics Engineering.

M2: To keep pace with changing industrial requirement and to imbibe the students with new technology

M3: To mould students for research, innovation and entrepreneurship.

M4: To inculcate managerial and professional capabilities with ethics and human values.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO-I : Graduates will be capable of modelling, designing and developing innovative solutions for critical Electrical and Electronics Engineering problems using advanced techniques.

PEO-II : Graduates will demonstrate professional competence, practical and innovative skills in integrating various electrical and electronics components enabling them to have successful careers in electrical power, electrical vehicle or allied industry

PEO-III : Graduates will be able to pursue higher studies, involve in research and development activities in interdisciplinary topics by applying recent technological developments in Artificial Intelligence, Electronics and Embedded systems

PROGRAMME OUTCOMES (PO's)

Engineering Graduates will be able to:

PO1 : **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals,and an engineering specialization to the solution of complex engineering problems.

PO2 : **Problem Analysis**: Identify, formulate, review research literature, and analyze complex engineeringproblems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 : **Design Development of Solutions**: Design solutions for complex engineering problems and designsystem components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 : **Conduct Investigations of complex problems**: Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 : **Modern Tool Usage**: Create, select, and apply appropriate techniques, resources, and modernengineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 : **The Engineer & Society**: Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 : **Environment & Sustainability**: Understand the impact of the professional engineering solutions insocietal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 : **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms ofthe engineering practice.

PO9 : **Individual & Team Work**: Function effectively as an individual, and as a member or leader indiverse teams, and in multidisciplinary settings.

PO10 : **Communication**: Communicate effectively on complex engineering activities with the engineeringcommunity and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 : **Project Management & Finance**: Demonstrate knowledge and understanding of the engineeringand 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.

PO12 : **Life-Long Learning**: Recognize the need for, and have the preparation and ability to engage inindependent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES: (PSO's)

Graduates of B.Tech Electrical and Electronics Engineering students will be able to

PSO1 : Use logical & technical skills to model, simulate, analyze and develop electrical components and systems

PSO2 Integrate the knowledge of fundamental Electronics, Power Electronics, Control System, Artificial Intelligence and Embedded systems for designing industrial control systems

PSO3 : Contribute for the development of smart power grid, electric vehicle and integrating green energy to meet the increasing demand of the society

PEOs and POs:

B.Tech Electrical and Electronics Engineering Program Outcomes (POs) leading to the achievements of the objectives (PEOs) are summarised in the following table.

Programme EducationalObjectives (PEOs)	ProgrammeOutcomes (POs)														
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**PSO1**	**PSO2**	**PSO3**
I	2	1	2	2	2	2	1	1	3	1	2	3	2	3	3
II	3	2	2	1	2	1	2	2	2	1	1	2	3	3	2
III	2	1	3	2	3	2	1	1	2	2	2	3	2	2	3

		Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS 02	PS O3
YEAR 1	SEMESTER1	1	Matrices and Calculus	2.8	2.6	1.6	1.4	1.6	-	-	-	-	-	-	1.4	1.6	1.4	-
		2	Engineering Physics	3	3	1.4	1.4	1.8	-	-	-	2.6	-	-	2.2	1.4	2	-
			OR															
			Engineering Materials	3	2	1.4	-	-	-	1.6	-	-	-	-	2	1.6	1.6	-
		3	Communication Skills	-	-	-	-	-	-	-	1.4	0.4	2.8	1.8	2	1.2	1.4	-
			OR															
			Personality Development and Soft Skills	-	-	-	-	-	-	-	1.4	0.4	2.8	1.8	2	1.2	1.4	-
		4	Programming Fundamentals using C Or Programming in Python	2.4	2.4	2.4	1.2	1	1.4	-	1.2	1	0.8	0.8	1.2	1.8	1.4	-
			OR															
			Engineering Graphics and Computer Aided Design	2.4	1.4	1.2	-	1.6	-	-	1.4	1.6	1.8	-	2	1	0.8	0.8
		5	Design Thinking	1.4	1.2	1.6	-	1.8	2.8	2.8	2	2.4	2.4	0.8	2	2.4	2.6	2.6
		6	Engineering Practices Lab	3	2	-	2	-	1	-	-	-	-	-	-	2.3	1.3	1.3
			OR															
			Fab Lab for Circuit Engineering	1.4	1.4	1.6	1.6	1.4	-	-	-	-	-	-	1.4	1.6	1.6	1.6
		7	Outreach (NCC) – Level I #	-	-	-	-	-	-	-	-	-	3	-	-	--		-
			OR															
			Outreach (NSS, Y's Men, Rotaract) – Level I #	-	-	-	-	-	-	-	-	-	3	-	-	--		-
		8	Tamil (Regional Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Hindi (Regional Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Telugu (Regional Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			OR															

			French (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			German (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Spanish (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Korean (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Mandarin (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Japanese (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			OR															
			Universal Human Values	-	-	-	-	-	1	2	3	1	-	-	-	-	-	-
		9	Tamil Culture and Technology	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-

		Sl. No	COURSE NAME	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO 10**	**PO 11**	**PO 12**	**PS O1**	**PS O2**	**PSO3**
YEAR 1	**SEMESTER2**	1	Analytical Mathematics	3	3	2	1	2	-	-	-	-	-	-	2	3	0	-
		2	Engineering Physics	3	3	1.4	1.4	1.8	-	-	-	2.6	-	-	2.2	1.4	2	-
			OR															
			Engineering Materials	3	2	1.4	-	-	-	1.6	-	-	-	-	2	1.6	1.6	-
		3	Communication Skills	-	-	-	-	-	-	-	1.4	0.4	2.8	1.8	2	1.2	1.4	-
			OR															
			Personality Development and Soft Skills	-	-	-	-	-	-	-	1.4	0.4	2.8	1.8	2	1.2	1.4	-
		4	Circuits and Networks	2.4	2.4	2.4	1.2	1	1.4	-	1.2	1	0.8	0.8	1.2	1.8	1.4	2.0
		5	Programming Fundamentals using C Or Programming in Python	2.4	2.4	2.4	1.2	1	1.4	-	1.2	1	0.8	0.8	1.2	1.8	1.4	-
			OR															
			Engineering Graphics and Computer Aided Design	2.4	1.4	1.2	-	1.6	-	-	1.4	1.6	1.8	-	2	1	0.8	-

		6	Engineering Practices Lab	3	2	-	2	-	1	-	-	-	-	-	-	2.3	1.3	-
			OR															
			Fab Lab for Circuit Engineering	1.4	1.4	1.6	1.6	1.4	-	-	-	-	-	-	1.4	1.6	1.6	-
		7	Outreach (NCC) – Level 2 **#**	-	-	-	-	-	-	-	-	-	3	-	-	--	-	-
			OR															
			Outreach (NSS, Y's Men, Rotaract) – Level 2 **#**	-	-	-	-	-	-	-	-	-	3	-	-	--	-	-
		8	Tamil (Regional Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Hindi (Regional Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Telugu (Regional Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			OR															-
			French (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			German (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Spanish (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Korean (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Mandarin (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			Japanese (Foreign Language)	-	-	-	-	-	-	0.4	0.4	0.4	3	0.4	0.6	-	-	-
			OR															
			Universal Human Values	-	-	-	-	-	1	2	3	1	-	-	-	-	-	-
		9	Mandatory Course I Mandatory Course I is a Non-credit course (Student shall select one course from the list given under Mandatory Course I)															-

		Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PSO3
YEAR 2	SEMESTER 3	1	Partial Differential Equations and Transforms	3	3	2	2	2	-	-	-	-	-	-	-	1.4	1.6	
		2	Advanced Academic Writing	-	-	2	2	-	-	-	2.6	2	3	2	3	1.2	1.6	
		3	Electrical Machines	3	3	3	3	2	2	1	1					3	3	2
		4	Electromagnetic Theory	3	3	1	3	3	-	-	-	1	-	-	-	1	3	-
		5	Electronic Devices and Circuits	3	3	1	3	3	-	1		0.2	-	-	-	3	3	3
		6	Department Elective-1															
		7	Environmental Science and Sustainable Development	2	2	2	-	-	1	3	-	-	-	-	2	1.4	1.4	
		8	Design Project – 1	3.0	2.0	3.0	1.7	1.7	1.0	1.0	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0
		9	Internship -1 (To be carried out in summer after 2nd semester and evaluated in 3rd semester)	1	1	-		2	-	-	1	1.67	1.67	1.67	1.67	1.67	1	1
		10	Mandatory Course II Mandatory Course II is a Non-credit course (Student shall select one course from the list given under Mandatory Course II)															

		Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PSO3
YEAR 2	SEMESTER 4	1	Numerical Methods	**3**	**3**	2.8	2	2.8	**-**	**-**	-	**-**	-	**-**	**-**	**1**	**3**	**1**
		2	Professional Editing and Project Writing	-	-	-	2	-	-	-	-	-	3	-	2	-	-	
		3	Control Systems	**3**	**3**	2.8	2	2.8	**-**	**-**	-	**-**	-	**-**	**-**	**1**	**3**	**1**
		4	Data Structures and OOPS															
		5	Transmission and Distribution **(Industry Collaborated Course)**	2	2	2	-	1.6	-	1.6	1.2			0.4		1	1	1
		6	Department Elective-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

		7	Non-Department Elective-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		8	Design Project – 2	3	3	2.6	2	3	2	2	3	3	3	3	1	1.6	1.6	1.5
		9	Mandatory Course III Mandatory Course III is a Non-credit course (Student shall select one course from the list given under Mandatory Course III)	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

		Sl. No	COURSE NAME	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO 10**	**PO 11**	**PO 12**	**PS O1**	**PS O2**	**PSO3**
YEAR 3	**SEMESTER 5**	1	Public Speaking	-	-	-	-	-	-	-	-	1.2	3	-	2	-	-	
		2	Power Electronics	3	3	3	2	2.6	3	2	2			1.2	3	1.2	2	
		3	Microcontroller and Embedded Systems	3	2.8	2	2	3	-	-	-	1.8		1	2	2	1.8	1
		4	Digital Logic Circuits	2.6	2	2.4	2.5	2.6	1	1.2	-	-	2	2	1.6	2	1.6	-
		5	Department Elective-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		6	Non-Department Elective-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		7	Design Project – 3	3	3	2.6	2	3	2	2	3	3	3	3	1	1.6	1.6	1.5
		8	Entrepreneurship	2.75	2.5	1.75	2.5	2.25	2.75	1.75	1.5	2.75	2.5	2	3	2.5	2.5	
		9	Internship -2 (to be evaluated in 5th semester. To be carried out in summer after 4th semester))	1	1	-	-	2	0.6	-	1	1.6	1.6	1.6	0.6	0.6	1	

		Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PSO3
YEAR 3	SEMESTER 6	1	English for Competitive Examinations	-	-	-	-	-	-	0.4	0.4	0.8	3	0.8	-	-	0.6	
		2	Power System Analysis	3	3	2.2	2	2.8	-	-	-	-	-	-	-	1.4	2	1
		3	Power System Protection and Control	3	3	2.2	2	2.8	-	-	-	-	-	-	-	1.4	2	1
		4	Solid State Drives	3	3	1.4	2.6	2.6	-	-	-	-	-	-	-	2.6	2.8	1
		5	Department Elective-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		6	Non-Department Elective-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		7	Case Study / Field Study / Product study-Electric Vehicles	3	3	3	3	3	2	1	-	-	-	-	-	1	1	2
		8	Design Project – 4	3	3	2.6	2	3	2	2	3	3	3	3	1	1.6	1.6	1.5

		Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PSO3
YEAR 4	SEMESTER 7	1	Verbal Reasoning and Interview Skills	-	0.8	1.2	1.2	-	1.6	-	-	2	3	1	3	-	-	
		2	Electric Energy Utilisation and Conservation	2	1.2	2.2	-	1.6	2.2	-	-	1.6	2	2	2	2	1	2
		3	Renewable Energy Systems	2	1.2	2	-	1.6	2.2	-	-	1.6	2	2	2	2	1	2
		4	Electric Vehicle Technology	2.4	1.2	2	-	1.6	2.2	-	-	1.6	2	2	2	2	1	2
		5	Department Elective-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		6	Non-Department Elective-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		7	Research Methodology & IPR	2.4	2.8	1.2	1.2	3	2.4	1.8	2	2.2	2.6	2	3	2	2	
		8	Project Phase - 1	3	1	2	-	--	2	1	1	2	1	1	2	2	1.3	2

YEAR 4	SEMESTER 8	Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PSO3
		1	Project Phase – 2	3	3	2	2	3	1	1	1	3	1	3	1	3	3	2

DEPARTMENT ELECTIVE COURSES: VERTICALS

	Vertical 1	**Vertical 2**	**Vertical 3**
SEM	**Renewable Energy System**	**Power and Energy Systems**	**Artificial Intelligence**
III	Solar Energy Systems	Electrical Safety	Basic Python Programming
	Measurement and Instrumentation	Sensor and Network	Introduction to Data Science and Python
IV	Wind Energy Conversion Systems	Special Electrical Machines	Applied statistics for Artificial Intelligence
	Power Plant Engineering	Internet of Things	AI Fundamentals using MATLAB
V	Alternative Sources of Energy	Embedded Internet of Things	Artificial Neural Networks
	High Voltage Engineering	Advanced Control Theory	Deep Learning
VI	Energy Conversion and Storage Technologies	Industrial Internet of Things	Machine Learning for Electrical Engineers
	Electrical System Design	Power Quality	Optimisation for Machine Learning
VII	Power Electronics for Renewable Energy Systems	Power System and Smart grid	Applications of AI and ML Electrical Engineering
	Distributed Generation and Microgrids	Smart Grid Technologies and IoT	Applications of AI and ML in Industry

VERTICAL 1:RENEWABLE ENERGY SYSTEM

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Solar Energy Systems	2.6	2.2	2.6	2	2.6	1.4	1.4	-	1.4	2.4	1.6	2	1.6	1.6	2
2	Measurement and Instrumentation	3	2.8	3	2.8	3	2	2.8	2.8	2	3	2.4	-	1.4	1.2	2.1
3	Wind Energy Conversion Systems	1.4	1.6	1.4	1.2	2.6	0.6	-	-	2.4	1.4	2.4	1.4	1.4	1.4	2
4	Power Plant Engineering	2.4	2.6	1.8	1.6	1.4	1.2	1.4	-	1.4	-	1.4	1.4	1.2	1.4	2
5	Alternative Sources of Energy	3	3	3	3	2	2	2	2	1	1	1	1	3	3	2
6	High Voltage Engineering	3	3	-	0.8	1.4	-		-	3	-	-	3	1.4	2	1.4
7	Energy Conversion and Storage Technologies	1.6	1.2	1.4	-	0.2	-	-	-	-	0.4	-	1.4	1.4	1.2	2.1
8	Electrical System Design	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1
9	Power Electronics for Renewable Energy Systems	2.2	2.6	2.2	2.8	2.4	2.2	2	2	1.8	2	1.8	2.2	3	3	1.9
10	Distributed Generation and Microgrids	3	3	3	3	2	2	2	2	2	2	1	1	3	3	2

VERTICAL 2: POWER AND ENERGY SYSTEMS

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Electrical Safety	2.4	2.4	-	0.8	1.4	-	-	-	2.2	-	-	2.4	1.4	1.2	1.4
2	Sensor and Network	2.6	1.2	2.2	-	-	2.4	2.8	-	-	-	1.4	2.6	2.4	1.8	2.4
3	Special Electrical Machines	2.6	2.4	2.4	2.4	-	-	-	-	-	1.8	1.2	2.4	2.4	3	2.4
4	Internet of Things	3	3	-	0.8	1.4	-		-	3	-	-	3	1.4	2	1.4
5	Embedded Internet of Things	1.4	0.8	1.4	0.8	1	0.2	-	-		-	-	1.4	1.4	1.6	1.4
6	Advanced Control Theory	1.4	0.8	1.4	0.8	1	0.2	-	-		-	-	1.4	1.4	1.6	1.4

7	Industrial Internet of Things	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1
8	Power Quality	3	1.4	2	1.4	1	1.2	-	1.2	-	-	1	1	1	1	1
9	Power System and Smart grid	2.6	1.4	2.2	2.4	2.4	-	-	-	-	-	1.4	2.6	2.4	1.8	2.4
10	Smart Grid Technologies and IoT	2.6	1.4	2.2	2.4	2.4	-	-	-	-	-	1.4	2.6	2.4	1.8	2.4

VERTICAL 3: ARTIFICIAL INTELLIGENCE

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Basic Python Programming	3	3	-	0.8	1.4	-	-	-	3	-	-	3	1.4	1.6	1.4
2	Introduction to Data Science and Python	2.4	2.4	-	0.8	1.4	-	-	-	2.2	-	-	2.4	1.4	1.2	1.4
3	Applied statistics for Artificial Intelligence	3	3	-	0.8	1.4	-		-	3	-	-	3	1.4	2	1.4
4	AI Fundamentals using MATLAB	2.6	1.2	2.2	-	-	2.4	2.8	-	-	-	1.4	2.6	2.4	1.8	2.4
5	Artificial Neural Networks	2.6	2.4	2.4	2.4	-	-	-	-	-	1.8	1.2	2.4	2.4	3	2.4
6	Deep Learning	1.4	0.8	1.4	0.8	1	0.2	-	-		-	-	1.4	1.4	1.6	1.4
7	Machine Learning for Electrical Engineers	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1
8	Optimisation for Machine Learning	3	1.4	2	1.4	1	1.2	-	1.2	-	-	1	1	1	1	1
9	Applications of AI and ML Electrical Engineering	2.6	1.4	2.2	2.4	2.4	-	-	-	-	-	1.4	2.6	2.4	1.8	2.4
10	Applications of AI and ML in Industry	2.6	1.4	2	3	1	2	2.4	0	0	0	1.4	2.6	2.4	2	2.4

NON DEPARTMENT ELECTIVES

NON DEPARTMENT ELECTIVE-1

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Personality Development in Defence Service	2.6	2.2	2.6	2	2.6	1.4	1.4	-	1.4	2.4	1.6	2	1.6	1.6	1.6
2	Introduction to MATLAB Programming	3	2.8	3	2.8	3	2	2.8	2.8	2	3	2.4	-	1.4	1.2	1.4

NON DEPARTMENT ELECTIVE- 2

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Energy from Wastes	2.6	1.4	1.4	1.4	2.4	-	-	-	-	-	-	2.6	2.4	1.8	2.4
2	Electrical Safety	3	3	3	3	2	2	2	2	1	1	1	1	3	3	3

NON DEPARTMENT ELECTIVE-3

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Introduction to Solar Energy	3	3	3	3	2	2	-	-	1	1	1	1	3	3	3
2	Renewable Energy Sources	2.6	2.2	2.6	2	2.6	1.4	1.4	-	1.4	2.4	1.6	2	1.6	1.6	1.6

bNON DEPARTMENT ELECTIVE- 4

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Energy Conservation and Management	3	2.8	3	2.8	3	2	2.8	2.8	2	3	2.4	-	1.4	1.2	1.4
2	Hybrid and Electric Vehicles	2.6	2.2	2.6	2	2.6	1.4	1.4	-	1.4	2.4	1.6	2	1.6	1.6	1.6
3	Alternative Sources of Energy	3	2.8	3	2.8	3	2	2.8	2.8	2	3	2.4	-	1.4	1.2	1.4

Honours: Electric Vehicle Technology

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Electric Vehicle Technology	2.6	2.2	2.6	2	2.6	1.4	1.4	-	1.4	2.4	1.6	2	1.6	1.6	1.6
2	Hybrid and Electric Vehicles	3	2.8	3	2.8	3	2	2.8	2.8	2	3	2.4	-	1.4	1.2	1.4
3	EV Batteries and Charging System	2.6	1.4	2.2	2.4	2.4	-	-	-	-	-	1.4	2.6	2.4	1.8	2.4
4	Introduction to Self-Driving Cars	2.6	1.4	2	3	1	2	2.4	0	0	0	1.4	2.6	2.4	2	2.4

Minors: Batteries and Energy Storage Technologies

Sl. No	COURSE NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
1	Battery Management Systems	2.6	2.2	2.6	2	2.6	1.4	1.4	-	1.4	2.4	1.6	2	1.6	1.6	1.6
2	Battery SOC and SOH Estimation	3	2.8	3	2.8	1	-		-	2	3	2.4	-	1.4	1.2	1.4
3	Electrochemical Energy Storage	2.6	1.4	2.2	2.4	2.4	-	-	-	-	-	1.4	2.6	2.4	1.8	2.4

B. TECH. ELECTRICAL AND ELECTRONICS ENGINEERING

GENERAL COURSE STRUCTURE & THEME

A. Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (P) per week	1 Credit

B. Range of Credits: In the light of the fact that a typical Model Four-year Under Graduate degree program in Engineering has about 160 credits, we have adopted 165 credits.

C. Structure of UG Program: The structure of UG program shall have essentially the following categories of courses with the breakup of credits as given:

S. No.	Category Code	Category	Breakup of Credits
1.	HS	Humanities & Social Science Courses	16
2.	BS	Basic Science Courses	24
3.	ES	Engineering Science Courses	15
4.	PC	Program Core Courses (Branch specific)	61
5.	DE	Professional Elective Courses (Branch specific) – Department Elective	15
6.	NE	Open Elective Courses (Cross Discipline Subjects) – Non Department Elective	12
7.	EEC	Employment Enhancement Courses (Project/ Summer Internship/ Seminar)	22
		TOTAL	**165**

CURRICULUM COURSE DISTRIBUTION (BASED ON CREDITS)

Semester	HS	BS	ES	PC	DE	NE	EEC	Total Credits per semester
1	6	8	4	4				**22**
2	5	8	5	4				**22**
3	1	4	2	10	3		2	**22**
4	1	4		10	3	3	1	**22**
5	1		2	10	3	3	2	**21**
6	1			13	3	3	1	**21**
7	1		2	10	3	3	3	**22**
8							13	**13**
Total Credits	**16**	**24**	**15**	**61**	**15**	**12**	**22**	**165**

CURRICULUM COURSE DISTRIBUTION (BASED ON COURSE COUNT)

Semester	HS	BS	ES	PC	DE	NE	EEC	MC	Total Courses per semester
1	4	2	2	1					**9**
2	3	2	2	1				**1**	**9**
3	1	1	1	3	1		2	**1**	**10**
4	1	1		3	1	1	1	**1**	**9**
5	1		1	3	1	1	2		**9**
6	1			4	1	1	1		**8**
7	1		1	3	1	1	1		**8**
8							1		**1**
Total Courses	**12**	**6**	**7**	**18**	**5**	**4**	**8**	**3**	**63**

MC : Mandatory Course

CREDIT COUNT

Semester	Credit Count
1	22
2	22
3	22
4	22
5	21
6	21
7	22
8	13
	165

B. TECH. ELECTRICAL AND ELECTRONICS ENGINEERING

CURRICULUM FRAMEWORK FOR SEMESTERS I TO VIII

 # Students should choose Level I and Level II of same outreach course in the semester 1 and 2 respectively.

B. TECH - EEE - CURRICULUM (NEP R2022A)											
SEMESTER – I											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	I	BS	TP	EMA51001	Matrices and Calculus	3	0	2	4	2	5
2	I	BS	TP	**Any one course to be opted**							
				EPH51001	Engineering Physics	3	0	2	4	2	5
				ECT51001	Engineering Materials						
3	I	HS	TP	**Any one course to be opted**		2	0	1	2	1	3
				GLS51001	Communication Skills						
				GLS51002	Personality Development and Soft Skills						
4	I	ES	TP	**Any one course to be opted**		2	0	2	3	2	4
				ECS51009	Programming Fundamentals using C						
				ECS51010	Programming in Python						
5	I	ES	TP	EME51001	Engineering Graphics and Computer Aided Design						
				EGE51002	Design Thinking	2	0	2	3	2	4
6	I	ES	PR	**Any one course to be opted**		0	0	4	2	2	4
				EGE51406	Engineering Practices Lab						
				EGE51409	Fab Lab for Circuit Engineering						
7	I	HS	PR	**Any one course to be opted**		0	0	2	1	4	2
				GGE51401	Outreach (NCC) – Level I #						
				GGE51402	Outreach (NSS, Y's Men, Rotaract) – Level I #						
8	I	HS	TH	**Any one course to be opted**							
				GLS51008	Tamil	2	0	0	2	2	2
				GLS51009	Hindi						
				GLS51010	Telugu						
				GLS51011	French						
				GLS51012	German						
				GLS51013	Spanish						
				GLS51014	Korean						
				GLS51015	Mandarin						
				GLS51016	Japanese						
				OR							
				GGE51001	Universal Human Values						
9	I	HS	TH	GLS51017	Tamil Culture and Technology	1	0	0	1	2	1
					Total	**15**	**0**	**15**	**22**	**19**	**30**

L – Lecture	T – Tutorial	P – Practical	C – Credit	S – Self Study	TCH – Total Contact Hours						
SEMESTER – II											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	II	BS	TP	EMA51002	Analytical Mathematics	3	0	2	4	2	5
2	II	BS	TP	**Any one course to be opted**		3	0	2	4	2	5
				EPH51001	Engineering Physics						
				ECT51001	Engineering Materials						
3	II	HS	TP	**Any one course to be opted**		2	0	1	2	1	3
				GLS51001	Communication Skills						
				GLS51002	Personality Development and Soft Skills						
4	II	PC	TP	EEE51001	Circuits and Networks	3	0	2	4	2	5
5	II	ES	TP	**Any one course to be opted**		2	0	2	3	2	4
				ECS51009	Programming Fundamentals using C OR						
				ECS51010	Programming in Python						
				EME51001	Engineering Graphics and Computer Aided Design						
6	II	ES	PR	**Any one course to be opted**		0	0				
				EGE51406	Engineering Practices Lab			**4**	2	2	4
				EGE51409	Fab Lab for Circuit Engineering						
7	II	HS	PR	**Any one course to be opted**		0	0	2	1	4	2
				GGE51403	Outreach (NCC) – Level II #						
				GGE51404	Outreach (NSS, Y's Men, Rotaract) – Level II #						
8	II	HS	TH	**Any one course to be opted**							
				GLS51008	Tamil	2	0	0	2	2	2
				GLS51009	Hindi	2	0	0	2	2	2
				GLS51010	Telugu	2	0	0	2	2	2
				GLS51011	French	2	0	0	2	2	2
				GLS51012	German	2	0	0	2	2	2
				GLS51013	Spanish	2	0	0	2	2	2
				GLS51014	Korean	2	0	0	2	2	2
				GLS51015	Mandarin	2	0	0	2	2	2
				GLS51016	Japanese	2	0	0	2	2	2
				OR							
				GGE51001	Universal Human Values	2	0	0	2	2	2
9	II	MC	TH	********	Mandatory Course I is a Non-credit course (Student shall select one course from the list given under Mandatory Course I)	3	0	0	*	2	3
					Total	**18**	**0**	**15**	**22**	**19**	**33**
L – Lecture	T – Tutorial	P – Practical	C – Credit	S – Self Study	TCH – Total Contact Hours						

 # Students should choose Level I and Level II of same outreach course in the semester 1 and 2 respectively.
*** Non-credit course**

SEMESTER – III

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	III	BS	TP	EMA51003	Partial Differential Equations and Transforms	3	1	0	4	2	4
2	III	HS	TP	GLS51003	Advanced Academic Writing	1	0	1	1	1	2
3	III	PC	TP	EEE51002	Electrical Machines	3	0	2	4	2	5
4	III	PC	TH	EEE51003	Electromagnetic Theory	2	1	0	3	2	3
5	III	PC	TH	EEE51004	Electronic Devices and Circuits	2	1	0	3	2	3
6	III	DE	TP	EEE515xx	Department Elective 1	2	0	2	3	2	4
7	III	ES	TH	GGE51003	Environmental Science and Sustainable Development	2	0	0	2	2	2
8	III	EEC	DP	EEE51800	Design Project – 1	0	0	2	1	6	2
9	III	EEC	IN	EEE51801	Internship -1# (To be carried out in summer after 2nd semester and evaluated in 3rd semester)	#			1	2	0
10	III	MC	TH	********	Mandatory Course- II is a Non-credit course (Student shall select one course from the list given under Mandatory Course II)	3	0	0	*	2	3
					Total	**18**	**3**	**7**	**22**	**23**	**28**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

SEMESTER – IV

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	**IV**	BS	TP	EMA51009	Numerical Methods	3	1	0	4	2	4
2	**IV**	HS	TP	GLS51004	Professional Editing and Project Writing	1	0	1	1	1	2
3	**IV**	PC	TP	EEE51005	Control Systems	2	1	2	4	2	5
4	**IV**	PC	TP	EEE51006	Data Structures and OOPS	2	0	2	3	2	4
5	**IV**	PC	TP	EEE51007	Industry Collaborated Course - Transmission and Distribution	2	0	2	3	2	4
6	**IV**	DE	TP	EEE515xx	Department Elective 2	2	0	2	3	2	4
7	**IV**	NE	TP	Exx517xx	Non-Department Elective 1	2	0	2	3	2	4
8	**IV**	EEC	DP	EEE51802	Design Project – 2	0	0	2	1	6	2
9	IV	MC	TH	********	Mandatory Course- III is a Non-credit course (Student shall select one course from the list given under Mandatory Course III)	3	0	0	*	2	3
					Total	**17**	**2**	**13**	**22**	**21**	**32**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

SEMESTER – V											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	V	HS	TP	GLS51005	Public Speaking	1	0	1	1	1	2
2	V	PC	TP	EEE51008	Power Electronics	2	1	2	4	2	5
3	V	PC	TP	EEE51009	Microcontroller and Embedded Systems	2	0	2	3	2	4
4	V	PC	TP	EEE51010	Digital Logic Circuits	2	1	2	3	2	5
5	V	DE	TP	EEE515xx	Department Elective 3	2	0	2	3	2	4
6	V	NE	TP	Exx517xx	Non-Department Elective 2	2	0	2	3	2	4
7	V	EEC	DP	EEE51803	Design Project – 3	0	0	2	1	6	2
8	V	ES	TP	EGE51004	Entrepreneurship	2	0	0	2	6	2
9	V	EEC	IN	EEE51804	Internship -2#(to be evaluated in 5th semester. To be carried out in summer after 4th semester))	#			1	0	0
					Total	**13**	**2**	**13**	**21**	**23**	**28**
L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours											

SEMESTER – VI											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VI	HS	TP	GLS51006	English for Competitive Examinations	1	0	1	1	1	2
2	VI	PC	TP	EEE51011	Power System Analysis	2	1	2	4	2	5
3	VI	PC	TP	EEE51012	Power System Protection and Control	2	0	2	3	2	5
4	VI	PC	TP	EEE51013	Solid State Drives	2	0	2	3	2	4
5	VI	DE	TP	EEE515xx	Department Elective 4	2	0	2	3	2	4
6	VI	NE	TP	Exx517xx	Non-Department Elective 3	2	0	2	3	2	4
7	VI	PC	TP	EEE51014	Electric Vehicles (Case Study / Field Study /Product study)	2	0	2	3	6	4
8	VI	EEC	DP	EEE51805	Design Project – 4	0	0	2	1	6	2
					Total	**13**	**1**	**15**	**21**	**23**	**29**
L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours											

SEMESTER – VII											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VII	HS	TP	GLS51007	Verbal Reasoning and Interview Skills	1	0	1	1	1	2
2	VII	PC	TH	EEE51015	Electric Energy Utilization and Conservation	3	1	0	4	2	4
3	VII	PC	TP	EEE51016	Renewable Energy Systems	2	0	2	3	2	4
4	VII	PC	TH	EEE51017	Electric Vehicle Technology	2	1	0	3	2	3
5	VII	DE	TP	EEE515xx	Department Elective 5	2	0	2	3	2	4

6	VII	NE	TP	Exx517xx	Non-Department Elective 4	2	0	2	3	2	4
7	VII	ES	TH	EGE51005	Research Methodology and IPR	2	0	0	2	2	2
8	VII	EEC	PJ	EEE51806	Project Phase 1	0	0	6	3	6	6
					Total	14	2	13	22	19	29

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

SEMESTER – VIII

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	**VIII**	EEC	PJ	EEE51807	Project Phase 2	0	0	26	13	10	26
					Total	**0**	**0**	**26**	**13**	**10**	**26**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

Mandatory Course-I

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	II	MC	TH	GGE51011	Introduction to Women and Gender Studies	3	0	0	*	2	3
2	II	MC	TH	GGE51012	Public and Personal Administration	3	0	0	*	2	3
3	II	MC	TH	GGE51013	Constitution of India	3	0	0	*	2	3
4	II	MC	TH	EGE51006	Law for Engineers	3	0	0	*	2	3
5	II	MC	TH	GGE51015	Indian Knowledge System (IKS)	3	0	0	*	2	3

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

* Non Credit Course

Mandatory Course-II

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	III	MC	TH	GGE51021	Traditional Indian Systems of Medicine and Therapies	3	0	0	*	2	3
2	III	MC	TH	GGE51022	History of Science and Technology in India	3	0	0	*	2	3
3	III	MC	TH	GGE51023	Political and Economic Thought for a Humane Society	3	0	0	*	2	3
4	III	MC	TH	GGE51024	State, Nation-Building and Politics in India	3	0	0	*	2	3
5	III	MC	TH	GGE51025	Industrial Safety	3	0	0	*	2	3

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

* Non Credit Course

Mandatory Course-III

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	IV	MC	TH	GGE51031	Principles of Management	3	0	0	*	2	3
2	IV	MC	TH	GGE51032	Human Resource	3	0	0	*	2	3

					Management						
3	IV	MC	TH	GGE51033	Green Technology	3	0	0	*	2	3
4	IV	MC	TH	GGE51034	Industrial Management	3	0	0	*	2	3
5	IV	MC	TH	GGE51035	Fintech and Financing new Business	3	0	0	*	2	3

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

LIST OF DEPARTMENTAL ELECTIVES

DEPARTMENT ELECTIVE- 1

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	III	DE	TP	EEE51500	Solar Energy Systems [1]	2	0	2	3	2	4
2	III	DE	TP	EEE51501	Measurement and Instrumentation [1]	2	0	2	3	2	4
3	III	DE	TP	EEE51502	Electrical Safety [2]	2	0	2	3	2	4
4	III	DE	TP	EEE51503	Sensors and Networks [2]	2	0	2	3	2	4
5	III	DE	TP	EEE51504	Basic Python Programming [3]	2	0	2	3	2	4
6	III	DE	TP	EEE51505	Introduction to Data Science and Python [3]	2	0	2	3	2	4

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

1. Renewable Energy system 2. Power and Energy system 3. Artificial intelligence

DEPARTMENT ELECTIVE -2

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	IV	DE	TP	EEE51506	Wind Energy Conversion Systems[1]	2	0	2	3	2	4
2	IV	DE	TP	EEE51507	Power Plant Engineering[1]	2	0	2	3	2	4
3	IV	DE	TP	EEE51508	Special Electrical Machines[2]	2	0	2	3	2	4
4	IV	DE	TP	EEE51509	Internet of Things[2]	2	0	2	3	2	4
5	IV	DE	TP	EEE51510	Applied statistics for Artificial Intelligence [3]	2	0	2	3	2	4
6	IV	DE	TP	EEE51511	AI Fundamentals using MATLAB[3]	2	0	2	3	2	4

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

1. Renewable Energy system 2. Power and Energy System 3. Artificial intelligence

DEPARTMENT ELECTIVE -3

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	V	DE	TP	EEE51512	Alternative Sources of Energy[1]	2	0	2	3	2	4
2	V	DE	TP	EEE51513	High Voltage Engineering[1]	2	0	2	3	2	4
3	V	DE	TP	EEE51514	Embedded Internet of Things[2]	2	0	2	3	2	4
4	V	DE	TP	EEE51515	Advanced Control Theory[2]	2	0	2	3	2	4
5	V	DE	TP	EEE51516	Artificial Neural Networks[3]	2	0	2	3	2	4
6	V	DE	TP	EEE51517	Deep Learning[3]	2	0	2	3	2	4

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

1. Renewable Energy system 2. Power and Energy sys 3. Artificial intelligence

DEPARTMENT ELECTIVE -4

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	VI	DE	TP	EEE51518	Energy Conversion and Storage Technologies[1]	2	0	2	3	2	4
2	VI	DE	TP	EEE51519	Electrical System Design[1]	2	0	2	3	2	4
3	VI	DE	TP	EEE51520	Industrial Internet of Things[2]	2	0	2	3	2	4
4	VI	DE	TP	EEE51521	Power Quality [2]	2	0	2	3	2	4
5	VI	DE	TP	EEE51522	Machine Learning for Electrical Engineers[3]	2	0	2	3	2	4
6	VI	DE	TP	EEE51523	Optimisation for Machine Learning[3]	2	0	2	3	2	4

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

1. Renewable Energy system 2. Power and Energy system 3. Artificial intelligence

DEPARTMENT ELECTIVE -5

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	VII	DE	TP	EEE51524	Power Electronics for Renewable Energy Systems[1]	2	0	2	3	2	4
	VII	DE	TP	EEE51525	Distributed Generation and Microgrids[1]	2	0	2	3	2	4
2	VII	DE	TP	EEE51526	Power System and Smart grid[2]	2	0	2	3	2	4
	VII	DE	TP	EEE51527	Smart Grid Technologies and IOT[2]	2	0	2	3	2	4
3	VII	DE	TP	EEE51528	Applications of AI and ML in Electrical Engineering[3]	2	0	2	3	2	4
	VII	DE	TP	EEE51529	Data Science for Electrical Engineers[3]	2	0	2	3	2	4

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

1. Renewable Energy system 2. Power and Energy system 3. Artificial Intelligence

LIST OF NON-DEPARTMENTAL ELECTIVES

SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
NON-DEPARTMENT ELECTIVE-1											
1	IV	NE	TP	EEE51700	Personality Development in Defence Service	2	0	2	3	2	4
2	IV	NE	TP	EEE51701	Introduction to MATLAB Programing	2	0	2	3	2	4
NON-DEPARTMENT ELECTIVE-2											
1	V	NE	TP	EEE51702	Energy from Wastes	2	0	2	3	2	4
2	V	NE	TP	EEE51703	Electrical Safety	2	0	2	3	2	4
NON-DEPARTMENT ELECTIVE-3											
1	VI	NE	TP	EEE51704	Introduction to Solar Energy	2	0	2	3	2	4
2	VI	NE	TP	EEE51705	Renewable Energy Sources	2	0	2	3	2	4
NON-DEPARTMENT ELECTIVE-4											
1	VII	NE	TP	EEE51706		2	0	2	3	2	4
2	VII	NE	TP	EEE51707	Hybrid and Electric Vehicles	2	0	2	3	2	4
3	VII	NE	TP	EEE51708	Alternative Sources of Energy	2	0	2	3	2	4

L – Lecture	T – Tutorial	P – Practical	C – Credit	S – Self Study	TCH – Total Contact Hours

LIST OF HONORS COURSES											
Honors in Electric Vehicle Technology											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	V	HN	TH	EEE51900	Electric Vehicle Technology	3	0	0	3	0	3
2	VI	HN	TH	EEE51901	Hybrid and Electric Vehicles	3	0	0	3	0	3
3	VII	HN	TH	EEE51902	EV Batteries and Charging System	3	0	0	3	0	3
4	VII	HN	TH	EEE51903	Introduction to Self-Driving Cars	3	0	0	3	0	3
					Total	**12**	**0**	**0**	**12**	**0**	**12**

LIST OF MINORS COURSES											
Minors in Batteries and Energy Storage Technologies											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	V	MN	TH	EEE51951	Battery Management Systems	3	0	0	3	0	3
2	VI	MN	TH	EEE51952	Battery SOC and SOH Estimation	3	0	0	3	0	3
3	VII	MN	TH	EEE51953	Electrochemical Energy Storage	3	0	0	3	0	3
Total						**12**	**0**	**0**	**12**	**0**	**12**