JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY - GURAJADA - VIZIANAGARAM
VIZIANAGARAM – 535 003 Andhra Pradesh (India)
(Established by Andhra Pradesh Act No.22 of 2021)

B. Tech (Regular-Full time)
(ELECTRICAL AND ELECTRONICS ENGINEERING)

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Department of ELECTRICAL AND ELECTRONICS ENGINEERING COURSE STRUCTURE
(Applicable from the academic year 2023-24 onwards)

I Year I Semester						
S.No.	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
1.	R23BS01	Linear Algebra & Calculus	3	0	0	3
2.	R23BS04	Chemistry	3	0	0	3
3.	R23ES07	Introduction to Programming	3	0	0	3
4.	R23ES03	Engineering Graphics	1	0	4	3
5.	R23ES04	Basic Electrical & Electronics Engineering	3	0	0	3
6.	R23BS04	Chemistry Lab	0	0	2	1
7.	R23ES07	Computer Programming Lab	0	0	3	1.5
8.	R23ES05	Electrical &Electronics Engineering Workshop	0	0	3	1.5
9.	R23MC02	NSS/NCC/Scouts &Guides/Community Service	0	0	1	0.5
		Total				**19.5**

I Year II Semester						
S.No.	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
1.	R23BS02	Differential Equations and Vector Calculus	3	0	0	3
2.	R23BS03	Engineering Physics	3	0	0	3
3.	R23HS01	Communicative English	2	0	0	2
4.	R23ES01	Basic Civil & Mechanical Engineering	3	0	0	3
5.	R23PC01	Electrical Circuit Analysis-I	3	0	0	3
6.	R23HS01	Communicative English Lab	0	0	2	1
7.	R23BS03	Engineering Physics Lab	0	0	2	1
8.	R23ES06	IT workshop	0	0	2	1
9.	R23ES02	Engineering Workshop	0	0	3	1.5
10.	R23PC01	Electrical Circuits Lab	0	0	3	1.5
11.	R23MC01	Health and Wellness, Yoga and Sports	0	0	1	0.5
		Total				**20.5**

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Department of ELECTRICAL AND ELECTRONICS ENGINEERING COURSE STRUCTURE
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B.Tech.– II Year I Semester

S.No.	Category	Title	L	T	P	Credits
1	BS	Complex Variables & Numerical Methods	3	0	0	3
2	HSMC	Universal Human Values – Understanding Harmony and Ethical Human Conduct	2	1	0	3
3	ES	Electromagnetic Field Theory	3	0	0	3
4	PCC	Electrical Circuit Analysis-II	3	0	0	3
5	PCC	DC Machines & Transformers	3	0	0	3
6	PCC	Electrical Circuit Analysis-II and Simulation Lab	0	0	3	1.5
7	PCC	DC Machines & Transformers Lab	0	0	3	1.5
8	SEC	Data Structures Lab	0	1	2	2
9	Audit Course	Environmental Science	2	0	0	-
Total			**15**	**2**	**10**	**20**

B.Tech. II Year-II Semester

S.No.	Category	Title	L	T	P	Credits
1	Management Course- I	Managerial Economics & Financial Analysis	2	0	0	2
2	ES /Basic Science	Analog Circuits	3	0	0	3
3	PCC	Power Systems-I	3	0	0	3
4	PCC	Induction and Synchronous Machines	3	0	0	3
5	PCC	Control Systems	3	0	0	3
6	PCC	Induction and Synchronous Machines Lab	0	0	3	1.5
7	PCC	Control Systems Lab	0	0	3	1.5
8	SEC	Python Programming Lab	0	1	2	2
9	Engineering Science	Design Thinking & Innovation	1	0	2	2
Total			**15**	**1**	**10**	**21**

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Mandatory Community Service Project Internship of 08 weeks duration during summer vacation

Department of ELECTRICAL AND ELECTRONICS ENGINEERING COURSE STRUCTURE
(Applicable from the academic year 2023-24 onwards)

B.Tech. III Year-I Semester

S.No	Category	Course Code	Title	L	T	P	C
1	PC		Power Electronics	3	0	0	3
2	PC		Digital Circuits	3	0	0	3
3	PC		Power Systems-II	3	0	0	3
4	PCE-1		1. Signals and Systems 2. Computer Architecture and Organization 3. Communication systems	3	0	0	3
5	OE-1		1. Renewable Energy Sources 2. Electrical Machine Design 3. Intelligent Control Systems	3	0	0	3
6	PC Lab-1		Power Electronics Lab	0	0	3	1.5
7	PC Lab-2		Analog and Digital Circuits Lab	0	0	3	1.5
8	SEC		Soft Skills	0	1	2	2
9	ES		Tinkering Lab	0	0	2	1
10	Internship		Evaluation of Community Service Project Internship (Done during II-II Summer Vacation – 8 Weeks)	0	0	0	2
11	MC		Technical Paper Writing & IPR	2	0	0	0
Total				**17**	**1**	**10**	**23**

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Department of ELECTRICAL AND ELECTRONICS ENGINEERING COURSE STRUCTURE
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B.Tech. III Year-II Semester

S.No	Category	Course Code	Title	L	T	P	C
1	PC		Electrical Measurements and Instrumentation	3	0	0	3
2	PC		Microprocessors and Microcontrollers	3	0	0	3
3	PC		Power System Analysis	3	0	0	3
4	PCE - II		1. Switchgear and Protection 2. Advanced Control Systems 3. Renewable and Distributed Energy Technologies	3	0	0	3
5	PCE - III		1. Electric Drives 2. Digital Signal Processing 3. High Voltage Engineering	3	0	0	3
6	OE - II		1. Fundamentals of Electric Vehicles 2. Electrical Wiring Estimation and Costing 3. Utilization of Electrical Energy	3	0	0	3
7	PC Lab-1		Electrical Measurements and Instrumentation Lab	0	0	3	1.5
8	PC Lab-2		Microprocessors and Microcontrollers Lab	0	0	3	1.5
9	SEC		IoT Applications of Electrical Engineering Lab	0	1	2	2
10	AC		Research Methodology	2	0	0	0
Total				**20**	**1**	**8**	**23**
Mandatory Industry Internship of 08 weeks duration during summer vacation							

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Department of ELECTRICAL AND ELECTRONICS ENGINEERING COURSE STRUCTURE
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B.Tech. IV Year-I Semester

S.No	Category	Course Code	Title	L	T	P	C
1	PC		Power System Operation and Control	3	0	0	3
2	Management Course-II		Energy Management & Auditing	2	0	0	2
3	PCE – IV		1. HVDC Transmission 2. FACTS 3. Design of PV systems	3	0	0	3
4	PCE - V		1. Electric Vehicles 2. Switched Mode Power Conversion 3. Electrical Distribution Systems	3	0	0	3
5	OE - III		1. Battery Management Systems 2. Concepts of Smart Grid Technologies 3. Introduction to Artificial Intelligence (APSCHE)	3	0	0	3
6	OE - IV		1. Power Quality and Custom Power Devices 2. Programmable Logic Controllers 3. Quantum Computing (APSCHE)	3	0	0	3
7	SEC		Power Systems Simulation Lab	0	0	4	2
8	AC		Constitution of India	2	0	0	0
9	Internship		Evaluation of Industry Internship (done during III-II Summer Vacation – 8 Weeks)	0	0	0	2
Total				19	0	4	21

B.Tech. IV Year-II Semester

S.No	Category	Title	L	T	P	C
1	Internship & Project Work	Full Semester Internship & Project Work	0	0	24	12

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Total Credits for Four Years of B.Tech (EEE): 160

***Minor Engineering Courses offered by EEE Department for Other Branches (Except EEE Branch)**

Note: A student must acquire additional 18 credits, for the award of Minor by fulfilling at least 3 credits must be earned from NPTEL/SWAYAM MOOC Courses (As per Proc.NoE1/JNTUGV/DAP/Guidelines for B.Tech Minors/2025 Dt: 20-02-2025)

S.No.	Course Code	Title	L	T	P	C
1		Concepts of Control Systems	3	0	0	3
2		Fundamentals of Electrical Measurements and Instrumentation	3	0	0	3
3		Concepts of Power System Engineering	3	0	0	3
4		Fundamentals of Power Electronics	3	0	0	3
5		Basics of Electric Drives and applications	3	0	0	3
6		Fundamentals of Utilization of Electrical Energy	3	0	0	3
7		Concepts of Renewable Energy Sources	3	0	0	3
8		EV Technologies	3	0	0	3
9		Basics of Electrical Machines	3	0	0	3

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*Honors Engineering Courses offered to EEE Branch students

Note: A student must acquire additional 18 credits and out of which at least 6 credits (i.e., 2 Courses of 3 Credits each) must be earned from NPTEL/SWAYAM MOOC Courses (As per Proc.NoE1/JNTUGV/DAP/Guidelines for B.Tech Honors/2025 Dt: 20-02-2025)

S.No.	Course Code	Title	L	T	P	C
1.		Electric Power Quality	3	0	0	3
2.		Smart Grid Technologies	3	0	0	3
3.		Power System Deregulation	3	0	0	3
4.		Real Time Control of Power Systems	3	0	0	3
5.		Advanced Power Systems Protection	3	0	0	3
6.		Grid Integration of Renewable Energy Sources	3	0	0	3
7.		AI applications in Power Systems	3	0	0	3
8.		Power Systems Lab	0	0	3	1.5
9.		Advanced Power Systems Simulation Lab	0	0	3	1.5
10.		Renewable Energy Technologies Laboratory	0	0	3	1.5
11.		Special Electrical Machines	3	0	0	3
12.		Machine Modelling and Analysis	3	0	0	3
13.		Power Electronic Converters	3	0	0	3
14.		Power Electronics for Renewable Energy systems	3	0	0	3
15.		Industrial Applications of Power Electronic Converters	3	0	0	3
16.		Advanced Electrical Drives	3	0	0	3
17.		Power Converters Laboratory	0	0	3	1.5
18.		Electric Drives Laboratory	0	0	3	1.5
19.		Electric Vehicles Laboratory	0	0	3	1.5
20.		Discrete Control Systems	3	0	0	3
21.		Process Dynamic and Control	3	0	0	3
22.		Optimal Control Theory	3	0	0	3