

B. TECH. FOUR YEAR DEGREE

PROGRAM CURRICULUM

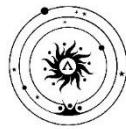
(Applicable for the batches admitted from A.Y 2025-26)

**ELECTRICAL & ELECTRONICS
ENGINEERING**



A D I T Y A
U N I V E R S I T Y

Aditya Nagar, ADB Road, Surampalem - 533 437



ADITYA UNIVERSITY

Department of EEE

Vision

To become a global leader in Electrical Engineering with innovation for sustainable development.

Mission

M1: Impart quality education and entrepreneur skills through cutting-edge technologies.

M2: Encourage innovation, interdisciplinary collaboration, and industry engagement.

M3: Promote ethics, social responsibility, and environmental awareness.

Graduates of the B.Tech. (Electrical and Electronics Engineering) will

PEO 1: Excel as professionals with leadership in industry, academia, and research.

PEO 2: Adapt emerging technologies to design complex systems with innovation.

PEO 3: Pursue lifelong learning with integrity, professionalism, and sustainability.

At the end of the program the students will be able to:

PSO 1: Apply power electronics for efficient energy conversion and automation.

PSO 2: Design and manage reliable, sustainable power systems.

PROGRAM OUTCOMES (PO's)

The 11 Program Outcomes are described as below.

After successful completion of the program, the 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 engineering problems 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 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
- PO4 **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
- PO5 **Engineering tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
- PO6 **The Engineer and the world :** 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
- PO7 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
- PO8 **Individual and collaborative teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
- PO9 **Communication:** Communicate effectively on complex engineering activities with the engineering community 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.
- PO10 **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.
- PO11 **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Department of Electrical and Electronics Engineering

B. Tech (EEE) Program Curriculum – 2025 (Applicable for the students admitted from the A.Y. 2025-26)

UG Program Offered

- B.Tech in (Electrical and Electronics Engineering)
- B.Tech in (Electrical and Electronics Engineering) with
 - Minor Degree in Civil Engineering
 - Minor Degree in Mechanical Engineering
 - Minor Degree in Electronics and Communication Engineering
 - Minor Degree in Computer Science and Engineering
 - Minor Degree in Data Science
 - Minor Degree in Artificial Intelligence and Machine Learning
 - Minor Degree in Petroleum Engineering
 - Minor Degree in Mining Engineering
 - Minor Degree in Agricultural Engineering
 - Minor Degree in Entrepreneurship Development and Incubation
 - Minor Degree in Quantum Technologies

Minor Streams offered in B.Tech (Electrical and Electronics Engineering)

- Minor Stream in Intelligent and Integrated Power Systems
- Minor Stream in Power Electronics and Energy Systems
- Minor Stream in Advanced Specialization on Electric Vehicles (Industry Integrated Program- L & T)
- Minor Stream in Design of Electrical System for Smart Buildings (Industry Integrated Program- L & T)

Credit Division Category Wise

S.No	Broad Category of Course	UGC	Credits
1	Major Core Courses (MCC)	80	81
2	Minor Stream Courses (MSC) (or) University Open Elective Courses (UEC)	32	32
3	Multidisciplinary Courses (MDC)	09	10
4	Ability Enhancement Courses (AEC)	08	09
5	Skill Enhancement Courses (SEC)	09	08
6	Value Added Courses (VAC)	06-08	04
7	Summer Internships (SI)	02 - 04	04
8	Full Semester Internship (PROJ)	12	12
9	Mandatory Courses (MC)		-
Total Credits to be earned for B.Tech Degree		160	160

Foundation courses – FC

Intermediate-Level courses - IC

Advanced courses – AC

Major Core Courses (MCC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501MA01	Linear Algebra & Calculus	FC	2	1		3	50	50	100	-
2501CH02	Applied Chemistry	FC	2		1	3	50	50	100	-
2501ME01	Engineering Graphics	FC	1		2	3	50	50	100	-
2501ME03	Engineering Workshop	FC			1	1	100	-	100	-
2501PH02	Modern Physics	FC	2		1	3	50	50	100	-
2501MA02	Differential Equations & Vector Calculus	FC	2	1		3	50	50	100	-
2501EE02	Electromagnetic Theory	FC	2	1		3	50	50	100	-
2501EE03	Electrical Network Analysis-I	FC	2		2	4	50	50	100	-
2501MA05	Numerical Methods & Integral Transforms	IC	2	1		3	50	50	100	DEVC
2501EE04	DC Machines & Transformers	IC	2		2	4	50	50	100	ENA-I
2501EE05	Electrical Network Analysis-II	IC	2		2	4	50	50	100	ENA-I
2501MA06	Complex Variables & Statistical Methods	IC	2	1		3	50	50	100	LAC
2501EE06	Electric Power Generation & Distribution Systems	IC	2			2	50	50	100	ENA-I/BEEE
2501EE07	Induction & Synchronous Machines	IC	2		2	4	50	50	100	EMT
2501EE08	Analog Electronic Circuits	IC	2	1	1	4	50	50	100	-
2501EC01	Digital Electronics & Logic Design	IC	2		2	4	50	50	100	-
2501EE09	Microprocessor & Interfacing	IC	2	1	1	4	50	50	100	DELD
2501EE10	Power Electronics	IC	2	1	1	4	50	50	100	-
2501EE11	Control Engineering	IC	2		2	4	50	50	100	-
2501EE12	Electric Power Transmission Systems	IC	2	1		3	50	50	100	EPGDS

2501EE13	Electrical Measurements & Instrumentation	IC	2	1	1	4	50	50	100	-
2501EE14	Power System Analysis	AC	2		2	4	50	50	100	EPTS
2501EE39	Energy converters	AC	2	1		3	50	50	100	PE
2501EE16	Power System Operation & Control	AC	2		2	4	50	50	100	PSA
Total			45	11	25	81				

Multidisciplinary Courses (MDC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501CS01	Programming for Problem Solving Using C	FC	2		2	4	50	50	100	-
2501CS03	Data Structures	IC	2		2	4	50	50	100	PPSC
2501MB01	Engineering Economics & Management	IC	2			2	50	50	100	-
Total			06		04	10				

Ability Enhancement Courses (AEC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite	
2501EN01	Essential Cognitive skills for Engineers	FC			1	1	100	-	100	-	
2501EN02	Advanced Cognitive Skills for Engineers (or) Proficiency in Sanskrit / Hindi / Foreign language (Japanese/German/Spanish/ French)	FC									
2501UC01											
2501UC02											
2501UC05						1	1	100	-	100	-
2501UC04											
2501UC06											
2501UC07	Design Thinking using AI	FC			1	1	100	-	100		
2501UC08	Universal Human Values	FC	2			2	50	50	100		
2501UC09	Technical Paper Publication	AC			2	2	100	-	100	-	

2501EE57	Student Activity Based Learning	AC				2	100	-	100	-
Total			02		05	09				

Skill Enhancement Courses (SEC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501IT01	Business Intelligence Lab	FC			2	2	50	50	100	-
2501EE17	Smart Technology & Applications Lab	IC			2	2	50	50	100	-
2501CS05	Machine Learning with Python	IC			2	2	50	50	100	-
2501EE18	Intelligent Algorithms for Power Systems	AC			2	2	50	50	100	-
Total					08	08				

Value Added Courses (VAC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501CS04	Internet of Things	FC			1	1	100	-	100	-
2501UC11	Employability skills -1	FC			3	0	100	-	100	-
2501UC13	Employability skills -2	FC			3	0	100	-	100	ES-1
2501CS02	Data Analysis Using Python	IC			2	2	50	50	100	PPSC
2501UC14	Employability skills -3	IC			3	0	100	-	100	ES-2
2501UC15	Employability skills -4	IC			3	0	100	-	100	ES-3
2501UC16	Employability skills -5	AC			3	1	100	-	100	ES-4
2501AC06	Advanced Data Structures & Algorithm	AC	2		1	0	100	-	100	DS
Total			2		19	04				

Summer Internships (SI)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE19	Summer Internship-I	IC			2	2	100	-	100	-
2501EE20	Summer Internship-II	AC			2	2	100	-	100	-
Total					04	04				

Full Semester Internship (PROJ)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE21	Full Semester Internship	AC			12	12	50	50	100	-
Total					12	12				

Mandatory Courses (MC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501AC01	Environmental Science	FC	2			0	100	-	100	-
2501AC02	Constitution of India	FC	2			0	100	-	100	-
2501AC03	Research Methodology	FC	2			0	100	-	100	-
2501AC04	Intellectual Property Rights & Patents	FC	2			0	100	-	100	-
2501AC05	Indian Knowledge Systems	FC	2			0	100	-	100	-
Total			10			0				

Minor Stream Courses: Intelligent and Integrated Power Systems

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE22	Electrical Machine Design	FC	3			3	50	50	100	-
2501EE27	Utilization of Electrical Energy	FC	3			3	50	50	100	DCMT
2501EE24	Electrical Distribution System	IC	2	1		3	50	50	100	EPGDS
2501EE26	HVDC Transmission	IC	3			3	50	50	100	PE
2501EE30	Methods & Algorithms for Intelligent Control	IC	2	1		3	50	50	100	-
2501EE23	High Voltage Engineering	IC	3			3	50	50	100	EPTS
2501EE28	Restructured Power Systems	AC	3			3	50	50	100	EPTS
2501EE31	Advance Control Systems	AC	2	1		3	50	50	100	CE
2501EE32	Concept of Smart Grid Technology	AC	2			2	50	50	100	PSA
2501EE25	Flexible Alternating Current Transmission Systems	AC	3			3	50	50	100	PE
2501EE29	Soft Computing Techniques in Power Systems	AC	2		1	3	50	50	100	PSA
	Total		28	3	1	32				

Minor Stream Courses: Power Electronics and Energy Systems

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE22	Electrical Machine Design	FC	3			3	50	50	100	-
2501EE34	Alternative Energy Sources	FC	3			3	50	50	100	-
2501EE27	Utilization of Electrical Energy	FC	3			3	50	50	100	DCMT
2501EE35	Special Electrical Machines	IC	2	1		3	50	50	100	ISM
2501EE36	Electric Energy Storage Systems	IC	3			3	50	50	100	AES
2501EE38	Digital Control Systems	AC	2	1		3	50	50	100	CE
2501EE15	Switch Gear & Protection	AC	3			3	50	50	100	EPTS
2501EE33	Energy Audit, Conservation & Management	AC	2	1		3	50	50	100	EPGDS
2501EE32	Concept of Smart Grid Technology	AC	2			2	50	50	100	PSA
2501EE40	Power Quality	AC	3			3	50	50	100	EPGDS
2501EE37	Hybrid Electric Vehicles	AC	3			3	50	50	100	PE
Total			29	3		32				

Minor Stream Courses: Advanced Specialization on Electric Vehicles (Industry Integrated Program- L & T)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE43	Electrical safety	FC	3			3	50	50	100	-
2501EE47	Finance for Professionals	FC	3			3	50	50	100	
2501EE41	Foundations of EV & Hybrid Vehicles	FC	3			3	50	50	100	PE
2501EE35	Special Electrical Machines	IC	2	1		3	50	50	100	ISM
2501EE44	EV Power Electronics & Embedded Systems	IC	3			3	50	50	100	EVBT
2501EE42	EV Battery Technology & Power train Development	IC	3			3	50	50	100	PE
2501EE45	EV Design & Analysis	IC	3			3	50	50	100	
2501EE33	Energy Audit, Conservation & Management	AC	2	1		3	50	50	100	EPGDS
2501ME43	EV Charging Infrastructure, Vehicle Testing & Homologation	AC	3			3	50	50	100	-
2501EE46	EV PCB Design & Data Analytics	AC	3			3	50	50	100	
2501EE32	Concept of Smart Grid Technology	AC	2			2	50	50	100	PSA
Total			30	2		32				

Minor Stream Courses: Design of Electrical System for Smart Buildings (Industry Integrated Program- L & T)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE43	Electrical safety	FC	3			3	50	50	100	-
2501EE47	Finance for Professionals	FC	3			3	50	50	100	
2501EC65	Applied Industrial IoT	FC	3			3	50	50	100	IOT
2501EE48	Electrical Power Distribution & Automation	IC	3			3	50	50	100	EPGDS
2501EE35	Special Electrical Machines	IC	2	1		3	50	50	100	ISM
2501EE49	Integrated Approach to Building Services	IC	3			3	50	50	100	-
2501EE33	Energy Audit, Conservation & Management	AC	2	1		3	50	50	100	EPGDS
2501EE50	Building Information Modelling	AC	3			3	50	50	100	-
2501EE51	Advanced Electrical System Design for Builders	AC	3			3	50	50	100	
2501EE52	Extra Low Voltage System Design for Buildings	AC	3			3	50	50	100	
2501EE32	Concept of Smart Grid Technology	AC	2			2	50	50	100	PSA
	Total		30	2		32				

#Syllabus for the industry partner courses will be released in the department as and when required.

UNIVERSITY OPEN ELECTIVE COURSES
AI & ML

Course Code	Course Name	Level	L	T	P	C	CIE	SE E	Total	Offered to Programs	Pre-requisite
2501AI02	Artificial Intelligence	FC	2		1	3	50	50	100	CE,EEE, ME, ECE, PT,Min.E	DAP
2501AI05	Machine Learning	FC	2		2	4	50	50	100	CE,EEE, ME, ECE, PT,Min.E	DAP
2501AI27	AI & Data Science	IC	2		1	3	50	50	100	CE,EEE, ME, ECE, PT,Min.E	DAP
2501AI28	AI in Healthcare	IC	2		1	3	50	50	100	CE,EEE, ME, ECE,CSE, IT, AIML,CS E (DS) PT,Min.E	DAP
2501AI11	Deep Learning	IC	2		2	4	50	50	100	CE,EEE, ME, ECE, PT,Min.E	DAP
2501AI10	Natural Language Processing	IC	2		1	3	50	50	100	CE,EEE, ME, ECE, PT,Min.E	DAP
2501AI09	Reinforcement Learning	AC	1		2	3	50	50	100	CE,EEE, ME, ECE, PT,Min.E	DAP
2501AI29	AI in Agriculture	AC	2		1	3	50	50	100	CE,EEE, ME, ECE,CSE, IT, AIML,CS E(DS) PT,Min.E	DAP
2501AI30	Robotics & AI	AC	2		1	3	50	50	100	CE,EEE, ME, ECE,CSE, IT, AIML,CS E(DS) PT,Min.E	DAP

2501AI31	AI in Finance & Economics	AC	2		1	3	50	50	100	CE,EEE,ME, ECE,CSE, IT, AIML,CS E(DS) PT,Min.E	DAP
Total			19		13	32					

Production Excellence											
Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Offered to Programs	Pre-requisite
2501ME81	Fundamentals of Production Excellence	FC	2			2	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML,CSE(DS) PT,Min.E	-
2501ME82	Six Sigma for Production Excellence	FC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
2501ME83	Quality Excellence in Production	IC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
2501ME84	Digital Transformation for Production Excellence	IC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
2501ME85	Agile Production Systems	IC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
2501ME86	Process Excellence & Optimization	IC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
2501ME87	Risk Management in Production Excellence	AC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE

2501ME88	Ethical & Social Responsibility in Production Excellence	AC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
2501ME89	Data-Driven Decision Making for Production Excellence	AC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,MinE	FPE
2501ME58	Industry 5.0 for Engineers	AC	3			3	50	50	100	CE,EEE, ECE, CSE,IT, AIML, CSE(DS) PT,MinE	FPE
2501ME90	Cost Excellence in Production	AC	2		1	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	FPE
Total			23		9	32					

Supply Chain Management											
Course Code	Course Name	Level	L	T	P	C	CIE	SE	Total	Offered to Programs	Pre-requisite
2501MB17	Introduction to Supply Chain Management	FC	2			2	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML,CSE(DS) PT,Min.E	-
2501MB18	Logistics & Distribution Management	FC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB19	Supply Chain Project Management	IC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB20	Supply Chain Innovation & Trends	IC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM

2501MB21	Supply Chain Analytics	IC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB22	Demand Planning & Forecasting	IC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB23	Supply Chain Risk Management	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB24	Inventory Management & Control	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB25	E-Commerce & Supply Chain Management	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB26	Operations Management	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
2501MB27	Supply Chain Ethics & Corporate Social Responsibility (CSR)	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	ISCM
Total			32			32					

Sustainability

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Offered to Programs	Pre-requisite
2501CE74	Introduction to Sustainable Development	FC	2			2	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML,CSE(DS) PT,Min.E	-

2501CE66	Natural Disaster Management & Mitigation	FC	3			3	50	50	100	EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501CE81	Waste Water Management	IC	3			3	50	50	100	EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501CE82	Integrated Solid Waste Management for a Smart City	IC	3			3	50	50	100	EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501CE83	Watershed Management	IC	3			3	50	50	100	EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501EE33	Energy Audit, Conservation & Management	IC	3			3	50	50	100	CE, ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	BEEE
2501EE53	Electric Power Generation, Transmission & Distribution Systems	AC	3			3	50	50	100	CE, ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	BEEE
2501CE75	Sustainable Agriculture & Food Systems	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501CE76	Sustainable Supply Chain Management	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501CE77	Sustainable Production Excellence	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501CE78	AI in Environmental Science and Sustainability	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
Total			32			32					

Security

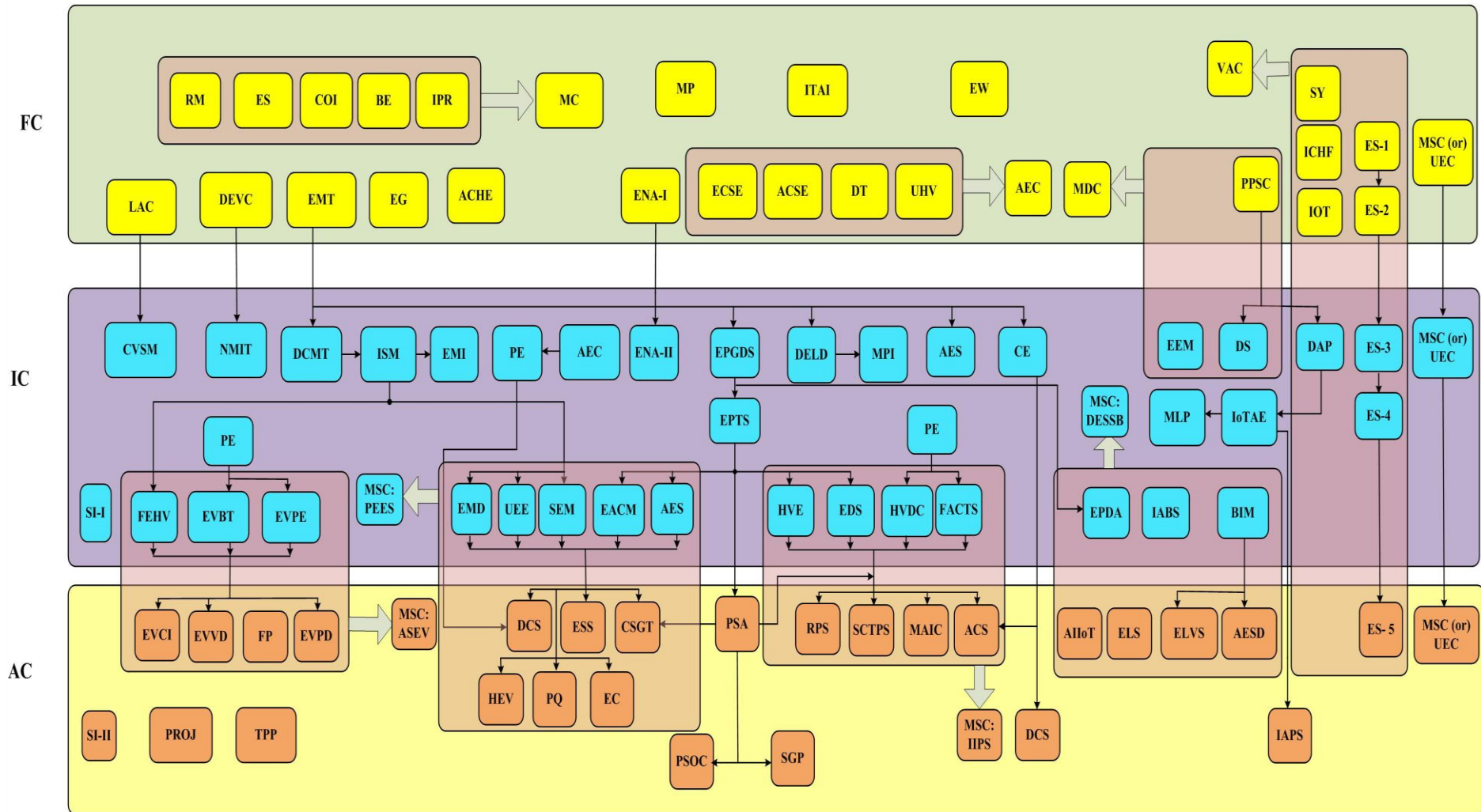
Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Offered to Programs	Pre-requisite
2501CS32	Cybersecurity Essentials	FC	2		1	3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT35	Security in Software Development	FC	3			3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS28	Ethical Hacking	IC	2		1	3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS69	Cloud Security	IC			3	3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT36	Security & Compliance in Business	IC	3			3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT37	Cryptography & Data Security	IC	2		1	3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT38	Security Awareness & Social Engineering	AC	2		1	3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT39	Cybersecurity Policy & Strategy	AC	3			3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT40	Security in Emerging Technologies	AC	3			3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS30	Information Security Analysis & Audit	AC	2			2	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT41	Financial Information Security & Privacy	AC	3			3	50	50	100	CE,EEE,ME, ECE, PT,Min.E	-
Total			25		07	32					

Others											
Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Offered to Programs	Pre-requisite
2501CE80	Remote Sensing & GIS Applications	FC	3			3	50	50	100	EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501EE36	Electric Energy Storage Systems	FC	3			3	50	50	100	CE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	BEEE
2501EE43	Electrical safety	IC	3			3	50	50	100	CE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	BEEE
2501EE54	Hybrid & Electric Vehicles	IC	3			3	50	50	100	CE, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	BEEE
2501ME73	Organizational Behaviour	FC	3			3	50	50	100	CE,EEE, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501ME36	Sustainable Energy Systems	FC	3			3	50	50	100	CE, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501ME37	Solar Energy Systems	FC	3			3	50	50	100	CE,EEE,ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501ME60	Composite Materials	IC	3			3	50	50	100	CE,EEE,ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	SSP/MP
2501EC82	Communication Systems	FC	3			3	50	50	100	CE,EEE,ME,CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501EC83	Electronic Measurements & Instrumentation	FC	3			3	50	50	100	CE,EEE,ME, CSE,IT, AIML, CSE(DS) PT,Min.E	BEEE
2501EC84	Introduction to Embedded Systems	FC	3			3	50	50	100	CE,EEE,ME, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501EC85	Fundamentals of Image Processing	FC	3			3	50	50	100	CE,EEE,ME, CSE,IT, AIML, CSE(DS) PT,Min.E	

2501EC77	Sensors and Transducers	IC	3		3	50	50	100	CE,EEE,ME, CSE,IT, AIML, CSE(DS) PT,Min.E	
2501CS03	Data Structures	FC	2		2	4	50	100	CE,EEE,ME, ECE, PT,Min.E	PPSC
2501CS65	Computer Organization	FC	2		1	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS13	Operating Systems	IC	2		1	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT05	Database Management Systems	IC	2		2	4	50	100	CE,EEE,ME, ECE, PT,Min.E	PPSC
2501IT07	Agile Software Engineering	IC	2		1	3	50	100	CE,EEE,ME, ECE, PT,Min.E	PPSC
2501CS07	Computer Networks	IC	2		1	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT06	Java Programming	IC	2		2	4	50	100	CE,EEE,ME, ECE, PT,Min.E	PPSC
2501CS68	Fundamentals of RedHat Enterprise Linux	FC			2	2	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS67	AWS Cloud Foundations	IC			3	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS66	AWS Cloud Development	AC			3	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501CS70	Continuous integration & delivery using DevOps	AC			3	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT24	Fundamentals of Salesforce Administration	FC			2	2	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT34	Advanced Salesforce Administration	AC			3	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT23	Principles of Pega Systems	IC			3	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501IT26	Pega System Architecture & Design	AC			3	3	50	100	CE,EEE,ME, ECE, PT,Min.E	-
2501MB04	Entrepreneurship Development & Incubation	IC	3			3	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-

2501MB05	Business Ethics & Corporate Governance	AC	3			3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501MB06	Entrepreneurship Development & Business Management	AC	1		2	3	50	50	100	CE,EEE,ME, ECE, CSE,IT, AIML, CSE(DS) PT,Min.E	-
2501EC29	SoC Design	AC	3			3	50	50	100	CE, EEE, ME, CSE, IT, AIML, CSE (DS), PT, Min.E.	MPMC
2501CS23	Cloud Computing	FC	2		2	4	50	50	100	CE, EEE, ME, ECE, PT, Min.E.	-

B.Tech. (EEE) Program Curriculum Pre-requisite Flowchart



FC: Foundation Courses

LAC : Linear Algebra & Calculus	ACHE : Applied Chemistry	EMT : Electromagnetic Theory
MP : Modern Physics	DEVC : Differential Equations & Vector Calculus	EW : Engineering Workshop
ENA-I : Electrical Network Analysis-I	EG : Engineering Graphics	

SEC: Skill Enhancement Courses

BIL : Business Intelligence Lab	MLP : Machine Learning with Python	IoTAE : IoT Applications of Electrical Engineering
IAPS : Intelligent Algorithms for Power Systems		

AEC: Ability Enhancement Courses

ECSE : Essential Cognitive Skills for Engineers	ACSE : Advanced Cognitive skills for Engineers	DT : Design Thinking using AI
		UHV : Universal Human Values

VAC: Value Added Courses

ICHF : Indian Cultural Heritage & Fine Arts	SY : Sports & Yoga	IOT : Internet of Things
ES-2 : Employability Skills - 2	DAP : Data Analysis Using Python	ES-1 : Employability Skills - 1
ES-5 : Employability Skills - 5	ES-3 : Employability Skills - 3	ES-4 : Employability Skills - 4

MC: Mandatory Courses

ES : Environmental Science	COI : Constitution of India	IPR : Intellectual Property Rights & Patents
RM : Research Methodology	BE : Biology for Engineers	

MDC: Multidisciplinary Courses

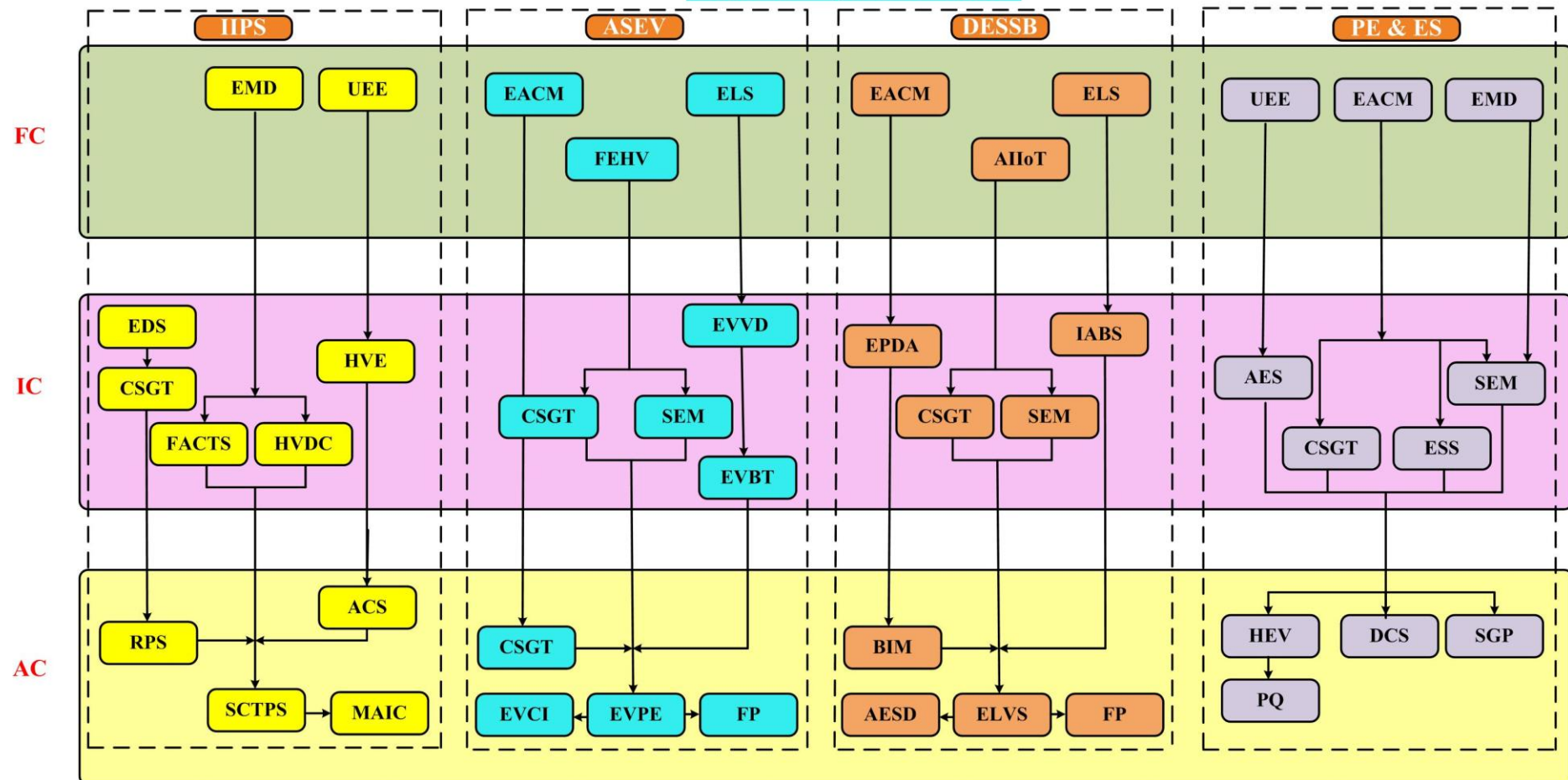
PPSC : Programming for Problem Solving Using C	DS : Data Structures	EEM : Engineering Economics & Management
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IC: Intermediate-level courses

ISM : Induction Synchronous Machines	CVSM : Complex Variables & Statistical Methods	NMIT : Numerical Methods & Integral Transforms
DCMT : DC Machines & Transformers	PE : Power Electronics	AEC : Analog Electronic Circuits
ENA-II : Electrical Network Analysis-II	CE : Control Engineering	SI-I : Summer Internship-I

EMI	: Electrical Measurements & Instrumentation	EPGDS	: Electric Power Generation & Distribution Systems	EPTS	: Electric Power Transmission Systems
DELD	: Digital Electronics & Logic Design	MPI	: Microprocessor & Interfacing		
		AC: Advanced Courses			
PSA	: Power System Analysis	EC	: Energy Converters	TPP	: Technical Paper Publication
PSOC	: Power System Operation & Control	SI-II	: Summer Internship-II	PROJ	: Full Semester Internship
SABL	: Student Activity Based Learning				

2024 B.Tech. EEE Curriculum Minor Prerequisite Flowchart



MSC: Minor Stream Courses

IIPS: Intelligent and Integrated Power Systems

HVE:	: High Voltage Engineering	EDS	: Electrical Distribution System	HVDC	: HVDC Transmission
FACTS	: Flexible Alternating Current Transmission Systems	SCTPS	: Soft Computing Techniques in Power Systems	MAIC	: Methods & Algorithms for Intelligent Control
RPS	: Restructured Power Systems	EMD	: Electrical Machine Design	ACS	: Advance Control Systems

PEES: Power Electronics and Energy Systems

EACM	: Energy Audit, Conservation & Management	CSGT	: Concept of Smart Grid Technology	UEE	: Utilization of Electrical Energy
SEM	: Special Electrical Machines	ESS	: Electric Energy Storage Systems	AES	: Alternative Energy Sources
DCS	: Digital Control Systems	PQ	: Power Quality	HEV	: Hybrid Electric Vehicles
				SGP	: Switch Gear & Protection

ASEV: Advanced Specialization on Electric Vehicles

FEHV	: Foundations of EV & Hybrid Vehicles	EVBT	: EV Battery Technology & Powertrain Development	ELS	: Electrical Safety
EVPD	: EV PCB Design & Data Analytics	EVPE	: EV Power Electronics & Embedded Systems	EVCI	: EV Charging Infrastructure, Vehicle Testing & Homologation
EVVD	: EV Design & Analysis	FP	: Finance for Professionals		

DESSB: Design of Electrical System for Smart Buildings

EPDA	: Electrical Power Distribution & Automation	IABS	: Integrated Approach to Building Services	BIM	: Building Information Modelling
ELVS	: Extra Low Voltage System Design for Buildings	AESD	: Advanced Electrical System Design for Builders	AIIoT	: Applied Industrial IoT

Suggestive Semester-wise Curriculum

I SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501MA01	Linear Algebra & Calculus	MCC	FC	2	1		3	3
2501PH02	Modern Physics	MCC	FC	2		1	3	4
2501ME01	Engineering Graphics	MCC	FC	1		2	3	5
2501CS01	Programming for Problem Solving Using C	MDC	FC	2		2	4	6
2501UC08	Universal Human Values	AEC	FC	2			2	2
2501EN01	Essential Cognitive Skills for Engineer	AEC	FC			1	1	2
2501IT01	Business Intelligence Lab	SEC	FC			2	2	4
2501ME03	Engineering Workshop	MCC	FC			1	1	2
Total				09	01	09	19	26

II SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501EE03	Electrical Network Analysis-I	MCC	FC	2		2	4	6
2501MA02	Differential Equations & Vector Calculus	MCC	FC	2	1		3	3
2501CH02	Applied Chemistry	MCC	FC	2		1	3	4
2501CS03	Data Structures	MDC	IC	2		2	4	6
2501MB01	Engineering Economics & Management	MDC	IC	2			2	2
2501EC01	Digital Electronics & Logic Design	MCC	IC	2		2	4	6
2501UC07	Design Thinking using AI	AEC	FC			1	1	2
2501EN02	Advanced Cognitive Skills for Engineers	AEC	FC			1	1	2
2501UC11	Employability skills -1	VAC	FC			3	0	3
2501AC01	Environmental Science	MC	FC	2			0	2
Total				14	01	12	22	36

III SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501MA05	Numerical Methods & Integral Transforms	MCC	IC	2	1		3	3
2501EE04	DC Machines & Transformers	MCC	IC	2		2	4	6
2501EE02	Electromagnetic Theory	MCC	FC	2	1		3	3
2501EE05	Electrical Network Analysis-II	MCC	IC	2		2	4	6
2501EE08	Analog Electronic Circuits	MCC	IC	2	1	1	4	5
2501CS04	Internet of Things	VAC	FC			1	1	2
2501UC13	Employability skills -2	VAC	FC			3	0	3
2501AC06	Advanced Data Structures & Algorithm	VAC	AC	2		1	0	4
2501AC02	Constitution of India	MC	FC	2			0	2
Total				14	02	12	19	37

IV SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501MA06	Complex Variables & Statistical Methods	MCC	IC	2	1		3	3
2501EE06	Electric Power Generation & Distribution Systems	MCC	IC	2			2	2
2501EE07	Induction & Synchronous Machines	MCC	IC	2		2	4	6
2501EE10	Power Electronics	MCC	IC	2	1	1	4	5
	Minor Stream Course –1/ University Elective Course – 1	MSC/UEC	FC/IC	3			3	3
	Minor Stream Course –2/University Elective Course – 2	MSC/UEC	IC/AC	3			3	3
2501CS02	Data Analysis Using Python	VAC	IC			2	2	4
2501UC14	Employability skills -3	VAC	IC			3	0	3
2501AC03	Research Methodology	MC	FC	2			0	2
Total				16	02	9	21	33

V SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501EE11	Control Engineering	MCC	IC	2		2	4	6
2501EE13	Electrical Measurements & Instrumentation	MCC	IC	2	1	1	4	5
	Minor Stream Course – 3/ University Elective Course –3	MSC/ UEC	IC	2	1		3	3
	Minor Stream Course – 4 /University Elective Course –4	MSC/ UEC	IC	3			3	3
	Minor Stream Course – 5/University Elective Course –5	MSC/ UEC	FC/IC	3			3	3
2501EE17	Smart Technology & Applications Lab	SEC	IC			2	2	4
2501UC15	Employability skills -4	VAC	IC			3	0	3
2501EE19	Summer Internship-I	SI	IC			2	2	4
2501AC04	Intellectual Property Rights & Patents	MC	FC	2			0	2
	Total			15	01	10	21	33

VI SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501EE09	Microprocessor & Interfacing	MCC	IC	2	1	1	4	5
2501EE12	Electric Power Transmission Systems	MCC	IC	2	1		3	3
2501EE14	Power System Analysis	MCC	AC	2		2	4	6
2501CS05	Machine Learning with Python	SEC	IC			2	2	4
2501AC05	Indian Knowledge Systems	MC	FC	2			0	2
	Minor Stream Course – 6/ University Elective Course – 6	MSC/ UEC	IC/AC	3			3	3
	Minor Stream Course – 7/ University Elective Course – 7	MSC/ UEC	IC/AC	3			3	3
	Minor Stream Course – 8/ University Elective Course –8	MSC/ UEC	IC/AC	3			3	3
	Total			15	02	5	22	29

VII SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501EE39	Energy converters	MCC	AC	2	1		3	3
2501EE16	Power System Operation & Control	MCC	AC	2		2	4	6
	Minor Stream Course – 9/ University Elective Course –9	MSC/ UEC	AC	2			2	2
	Minor Stream Course – 10/ University Elective Course - 10	MSC/ UEC	AC	3			3	3
	Minor Stream Course – 11/ University Elective Course –11	MSC/ UEC	AC	3			3	3
2501EE18	Intelligent Algorithms for Power Systems	SEC	AC			2	2	4
2501EE20	Summer Internship-II	SI	AC			2	2	4
	Total			12	01	6	19	25

VIII SEMESTER

Course code	Course Title	Course		Credits				Total Hours
		Category	Level	L	T	P	Total	
2501UC09	Technical Paper Publication	AEC	AC			2	2	4
2501UC16	Employability skills -5	VAC	AC			3	1	3
2501EE21	Full Semester Internship/Project	PROJ	AC			12	12	24
2501EE57	Student Activity-Based Learning		AC				2	4
	Total					17	17	35

Total Credit: 160.

**Minor Degree in Electrical and Electronics Engineering
(offered to other branches students)**

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EE55	Operation & Control of Electric Machines	FC	2			2	50	50	100	BEEE
2501EE56	Fundamentals of Power Electronics	FC	2			2	50	50	100	BEEE
2501EE13	Electrical Measurements & Instrumentation	FC	2	1	1	4	50	50	100	ENA-1/BEEE
2501EE53	Electric Power Generation, Transmission & Distribution Systems	IC	3			3	50	50	100	ENA-1/BEEE
2501EE34	Alternative Energy Sources (or)	IC	3			3	50	50	100	EPGD S / BEEE/ ISM
2501EE27	Utilization of Electrical Energy									
2501EE37	Hybrid Electric Vehicles (or)	AC	3			3	50	50	100	FPE/ OCEM
2501EE35	Special Electric machines									
2501EE43	Electrical Safety (or)	AC	3			3	50	50	100	EPGD S/PSA
2501EE30	Methods & Algorithms for Intelligent Control									
Total			18		2	20				

Minor Degree in Quantum Technologies

S.No.	Course Code	Course Name	L	T	P	C	Semester
Mandatory Courses							
1	251EC097	Survey of Quantum technologies and Application	3	0	0	3	IV
2	251EC098	Foundations of Quantum Technologies	3	0	0	3	V
3	251EC099	Basic Programming Lab (or)	1	0	2	3	V
	251EC100	Basic Laboratory Course for Quantum Technologies					
4	251EC101	Quantum Algorithms and Cryptography	12 week 3 Credit - NPTEL MOOC			3	VII/VIII
Any One course from the below							
5	251EC102	Introduction to Quantum Computation	3	0	0	3	VI
6	251EC103	Introduction to Quantum Communication	3	0	0	3	VI
7	251EC104	Introduction to Quantum Sensing	3	0	0	3	VI
8	251EC105	Introduction to Quantum Materials	3	0	0	3	VI
Any One course from the below							
9	251EC106	Engineering Foundations of Quantum Technologies	3	0	0	3	VII
10	251EC107	Solid State Physics for Quantum Technologies	3	0	0	3	VII
11	251EC108	Quantum Optics	3	0	0	3	VII
12	251EC109	Quantum Cybersecurity	3	0	0	3	VII
13	251EC110	Quantum Machine Learning	3	0	0	3	VII
Total			18	0	0	18	