



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For

B. TECH ELECTRICAL AND ELECTRONICS ENGINEERING

(Applicable for batches admitted from 2020-2021)



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I B. Tech I SEMESTER

Sl. No	Course Components	Subjects	L	T	P	Credits
1	HSMC	Communicative English	3	0	0	3
2	BSC	Mathematics-I (Calculus and Differential Equations)	3	0	0	3
3	BSC	Mathematics-II (Linear Algebra and Numerical Methods)	3	0	0	3
4	ESC	Programming for Problem Solving Using C	3	0	0	3
5	ESC	Engineering Drawing & Design	1	0	4	3
6	HSMC	English Communication Skills Laboratory	0	0	3	1.5
7	BSC	Electrical Engineering Workshop	0	1	3	1.5
8	ESC	Programming for Problem Solving Using C Lab	0	0	3	1.5
Total Credits						19.5

I B. Tech II SEMESTER

Sl. No	Course Components	Subjects	L	T	P	Credits
1	BSC	Mathematics-III (Vector Calculus, Transforms and PDE)	3	0	0	3
2	BSC	Applied Physics	3	0	0	3
3	ESC	Data Structures Through C	3	0	0	3
4	ESC	Electrical Circuit Analysis -I	3	0	0	3
5	ESC	Basic Civil and Mechanical Engineering	3	0	0	3
6	BSC	Applied Physics Lab	0	0	3	1.5
7	ESC	Basic Civil and Mechanical Engineering Lab	0	0	3	1.5
8	ESC	Data Structures through C Lab	0	0	3	1.5
9	Mandatory Course	Constitution of India	2	0	0	0
Total Credits						19.5



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II B. Tech I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	BSC	Mathematics – IV	3	0	0	3
2	PCC	Electronic Devices and Circuits	3	0	0	3
3	PCC	Electrical Circuit Analysis –II	3	0	0	3
4	PCC	DC Machines and Transformers	3	0	0	3
5	PCC	Electro Magnetic Fields	3	0	0	3
6	PCC	Electrical Circuits Lab	0	0	3	1.5
7	PCC	DC Machines and Transformers Lab	0	0	3	1.5
8	PCC	Electronic Devices and Circuits lab	0	0	3	1.5
9	SC	Skill oriented course- Design of Electrical Circuits using Engineering Software Tools	0	0	4	2
10	MC	Professional Ethics & Human Values	2	0	0	0
Total Credits			21.5			

II B. Tech II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	ESC	Python Programming	3	0	0	3
2	PCC	Digital Electronics	3	0	0	3
3	PCC	Power System-I	3	0	0	3
4	PCC	Induction and Synchronous Machines	3	0	0	3
5	HSMC	Managerial Economics & Financial Analysis	3	0	0	3
6	ESC	Python Programming Lab	0	0	3	1.5
7	PCC	Induction and Synchronous Machines Lab	0	0	3	1.5
8	PCC	Digital Electronics Lab	0	0	3	1.5
9	SC	Skill oriented course- IoT Applications of Electrical Engineering	0	0	4	2
Total Credits			21.5			
		Minors/ Honors	4	0	0	4



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III B. Tech I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PCC	Power Systems-II	3	0	0	3
2	PCC	Power Electronics	3	0	0	3
3	PCC	Control Systems	3	0	0	3
4	OEC	Open Elective- I/ Job Oriented Elective-I	3	0	0	3
5	PEC	Professional Elective - I	3	0	0	3
6	PCC	Control Systems Lab	0	0	3	1.5
7	PCC	Power Electronics Lab	0	0	3	1.5
8	SC	Soft Skill Course: Employability Skills	2	0	0	2
9	MC	Environmental Science	2	0	0	0
10	PROJ	Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester)	0	0	0	1.5
Total Credits			21.5			
		Minors Course*	4	0	0	4
		Honors Course*	4	0	0	4

III B. Tech II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PCC	Microprocessors and Microcontrollers	3	0	0	3
2	PCC	Electrical Measurements and Instrumentation	3	0	0	3
3	PCC	Power System Analysis	3	0	0	3
4	PEC	Professional Elective - II	3	0	0	3
5	OEC	Open Elective –II/ Job Oriented Elective-II	3	0	0	3
6	PCC	Electrical Measurements and Instrumentation Lab	0	0	3	1.5
7	PCC	Microprocessors and Microcontrollers Lab	0	0	3	1.5
8	PCC	Power Systems and Simulation Lab	0	0	3	1.5
9	SC	Skill Advanced Course: Machine Learning with Python	2	0	0	2
10	MC	Research Methodology	2	0	0	0
Total Credits			21.5			
		Minors/ Honors	4	0	0	4



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IV B. Tech I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PEC	Professional Elective – III	3	0	0	3
2	PEC	Professional Elective – IV	3	0	0	3
3	PEC	Professional Elective – V	3	0	0	3
4	OEC	Open Elective- III /Job Oriented Elective-III	3	0	0	3
5	OEC	Open Elective-IV /Job Oriented Elective-IV	3	0	0	3
6	HSMC	Universal Human Values-2: Understanding Harmony	3	0	0	3
7	SC	Skill Advanced Course Machine Learning with Python Lab	0	0	4	2
8	PROJ	Industrial / Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII Semester)	0	0	3	3
Total Credits			23			
		Minors/ Honors	4	0	0	4

IV B. Tech II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	Major Project	Project work, seminar and internship in industry (6 Months)	--	--	--	12
Total Credits			12			



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Professional Elective Subjects offered to EEE Branch Students:

Professional Elective – I:

1.	Linear IC Applications
2.	Utilization of Electrical Energy
3.	Computer Architecture and Organization
4.	Optimization Techniques
5.	Object Oriented Programming through Java

Professional Elective – II:

1.	Signal and Systems
2.	Electric Drives
3.	Advanced Control Systems
4.	Switchgear and Protection
5.	Big Data Analytics

Professional Elective –III:

1.	Digital Signal Processing
2.	Renewable and Distributed Energy Technologies
3.	Flexible AC Transmission Systems
4.	Power Systems Deregulation
5.	Data Base Management Systems

Professional Elective – IV:

1.	Hybrid Electric Vehicles
2.	High Voltage Engineering
3.	Programmable Logic Controllers and Applications
4.	Cloud Computing with AWS
5.	Deep Learning Techniques

Professional Elective – V:

1.	Power System Operation and Control
2.	Switched Mode Power Conversion
3.	AI Applications to Electrical Engineering
4.	Data Science
5.	MEAN Stack Technologies



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Open Electives offered by EEE Department for Other Branches (Except EEE Branch)

Open Elective-I:

1.	Renewable Energy Sources
2.	Concepts of Optimization Techniques
3.	Concepts of Control Systems

Open Elective-II:

1.	Battery Management Systems and Charging Stations
2.	Fundamentals of utilization of Electrical Energy
3.	Indian Electricity Act

Open Elective-III:

1.	Concepts of Microprocessors and Microcontrollers
2.	Fundamentals of Electric Vehicles
3.	Concepts of Internet of Things

Open Elective-IV:

1.	Concepts of Power System Engineering
2.	Concepts of Smart Grid Technologies



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***Honors Engineering Courses offered EEE Branch students**

II B.Tech II Semester:

1.	Communication Systems
2.	Electrical Wiring, Estimation & Costing
3.	Electrical Distribution Systems

III B.Tech I Semester:

1.	Advanced Computer Networks
2.	Power Quality
3.	Special Electrical Machines

III B.Tech II Semester:

1.	Digital Control Systems
2.	Analysis of Power Electronic Converters
3.	HVDC Transmission

IV B.Tech I Semester:

1.	EHV AC Transmission
2.	Smart Grid Technologies
3.	Power Electronic Control of Electrical Drives



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***Minor Engineering Courses offered by EEE Department for Other Branches**
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II B.Tech II Semester:

1.	Fundamentals of Electrical Circuits
2.	Concepts of Electrical Measurements

III B.Tech I Semester:

1.	Analysis of Linear Systems
2.	Energy Auditing, Conservation and Management

III B.Tech II Semester:

1.	Evolutionary Algorithms
2.	Fundamentals of Power Electronics

IV B.Tech I Semester:

1.	Neural Networks and Fuzzy Logic
2.	Concepts of Electric Drives and Its Applications