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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

4 Years B.Tech. (Electrical & Electronics Engineering) Course Structure : (2020-21)

I YEAR I SEMESTER

S. No.	Subject Code	Course Category	Subject Title	Periods per week			C
				L	T	P	
1		BSC	Mathematics-I	3	0	0	3
2		BSC	Engineering Chemistry	3	0	0	3
3		HSMC	Communicative English - I	3	0	0	3
4		ESC	Electro Magnetic Fields	1	0	4	3
5		ESC	Basic Electrical and Electronics Engineering	3	0	0	3
6		BSC	Engineering Chemistry Laboratory	0	0	3	1.5
7		ESC	Basic Electrical and Electronics Engineering Laboratory	0	0	3	1.5
8		ESC	Electrical Engineering Workshop	0	0	3	1.5
TOTAL CREDITS							19.5

University Nominee
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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

4 Years B.Tech. (Electrical & Electronics Engineering) Course Structure : (2020-21)

I YEAR II SEMESTER

S. No.	Subject Code	Course Category	Subject Title	Periods per week			C
				L	T	P	
1		BSC	Mathematics-II	3	0	0	3
2		BSC	Applied Physics	3	0	0	3
3		ESC	Fundamentals of Computer Programming	3	0	0	3
4		ESC	Electrical Circuit Analysis	3	0	0	3
5		ESC	Engineering Graphics	1	0	4	3
6		BSC	Applied Physics Laboratory	0	0	3	1.5
7		ESC	Fundamentals of Computer Programming Laboratory	0	0	3	1.5
8		HSMC	Communicative English Laboratory	0	0	3	1.5
9		MC	Environmental Science	2	0	0	0
TOTAL CREDITS							**19.5**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

4 Years B.Tech. (Electrical & Electronics Engineering) Course Structure : (2020-21)

II YEAR I SEMESTER

S. No.	Course Type	Course Title	Periods per week			C	Scheme of Examination Maximum Marks		
			L	T	P		Int.	Ext.	Total
1	BSC	Mathematics – III	3	0	0	3	30	70	100
2	PCC	Fundamentals of Electronic Devices and Circuits	3	0	0	3	30	70	100
3	PCC	Electrical Circuit Analysis –II	3	0	0	3	30	70	100
4	PCC	DC Machines and Transformers	3	0	0	3	30	70	100
5	PCC	Electrical measurements	3	0	0	3	30	70	100
6	PCC	Electrical Circuits Lab	0	0	3	1.5	50	50	100
7	PCC	Electrical measurements and machines lab-I	0	0	3	1.5	50	50	100
8	PCC	Fundamentals of Electronic Devices and Circuits Lab	0	0	3	1.5	50	50	100
9	SC	Skill oriented course- Design of Electrical Circuits using Engineering Software Tools	2	0	0	2	-	50	50
10	MC	Constitution of India	2	0	0	0	30	70	100
TOTAL			17	0	11	21.5	330	620	950

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

4 Years B.Tech. (Electrical & Electronics Engineering) Course Structure : (2020-21)

II YEAR II SEMESTER

S. No.	Course Type	Course Title	Periods per week			C	Scheme of Examination Maximum Marks		
			L	T	P		Int.	Ext.	Total
1	ESC	Introduction to Python Programming	3	0	0	3	30	70	100
2	ESC	Digital Electronics	3	0	0	3	30	70	100
3	PCC	Power systems-1	3	0	0	3	30	70	100
4	PCC	Induction and Synchronous Machines	3	0	0	3	30	70	100
5	BSC	Managerial Economics & Financial Analysis	3	0	0	3	30	70	100
6	ESC	Python Programming Lab	0	0	3	1.5	50	50	100
7	PCC	Electrical measurements and machines lab-II	0	0	3	1.5	50	50	100
8	ESC	Digital Electronics Lab	0	0	3	1.5	50	50	100
9	SC	Skill oriented course -IoT Applications of Electrical Engineering	0	1	2	2	-	50	50
TOTAL			15	1	11	21.5	300	550	850

***** At the end of II year II semester, students must complete summer internship**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

4 Years B.Tech. (Electrical & Electronics Engineering) Course Structure : (2020-21)

HONORS DEGREE COURSES

SI.NO	ENERGY SYSTEMS	POWER SYSTEMS	CONTROL SYSTEMS	POWER ELECTRONICS	L	T	P	C
1	Solar energy	Deregulated Power Systems	Digital control systems	Advanced power electronic converters	4	0	0	4
2	Wind Energy	Advanced power system protection	PLC & Automation	Industrial Electronics				
3	Energy Storage Devices	Design of Substations	Robust control	Analysis of inverters				

NPTEL COURSES FOR HONORS DEGREE

SI.NO	NAME OF THE COURSE	LINK	DURATION	CREDITS
1	Control and Tuning Methods in Switched Mode Power Converters (IITKGP)	https://onlinecourses.nptel.ac.in/noc21_ee104/preview	12 weeks	2
2	Applied Electromagnetics For Engineers (IITK)	https://nptel.ac.in/courses/108/104/108104099/	12 weeks	2
3	Advances in UHV Transmission and Distribution (IISc)	https://nptel.ac.in/courses/108/108/108108099/	08 weeks	2
4	Introduction to Smart Grid (IITR)	https://nptel.ac.in/courses/108/107/108107113/	08 weeks	2

NOTE:

1. Students have to acquire 16 credits with minimum one subject from each pool.
2. Concerned BOS can add or delete the subjects as per the decision of the board.
3. Compulsory MOOC/NPTEL courses for 04 credits (02 courses @ 2 credits each.
4. For MOOC/NPTEL courses, depending on the availability of the courses in that semester, the student may choose subjects other than the ones mentioned above after approval of BOS chairman.

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

4 Years B.Tech. (Electrical & Electronics Engineering) Course Structure : (2020-21)

MINOR DEGREE COURSES

SI.NO	NAME OF THE COURSE	L	T	P	C
1	Electrical Energy and Its Applications	4	0	0	4
2	Electrical design estimation and costing				
3	Introduction to electrical power systems				
4	Principles of power electronics and its applications				
5	Electrical measuring instruments				
6	Electrical machines				
7	Energy management				
8	Alternative energy sources				

NPTEL COURSES FOR MINOR DEGREE

SI.NO	NAME OF TE COURSE	LINK	DURATION	CREDITS
1	Electric vehicles and renewable energy (IIT MADRAS)	https://onlinecourses.nptel.ac.in/noc21_ee112/preview	12 weeks	2
2	Fundamentals of electrical engineering (IITKGP)	https://nptel.ac.in/courses/108/105/108105112/	12 weeks	2
3	Electrical Distribution System Analysis (IITR)	https://nptel.ac.in/courses/108/107/108107112/	08 weeks	2
4	Dc Microgrid and Control System (IITR)	https://nptel.ac.in/courses/108/107/108107143/	08 weeks	2

NOTE:

1. A student can opt 04 subjects from 08 subjects @ 04 credits per subject
2. Concerned BOS can add or delete the subjects as per the decision of the board.
3. Compulsory MOOC/NPTEL courses for 04 credits (02 courses @ 2 credits each.
4. For MOOC/NPTEL courses, depending on the availability of the courses in that semester, the student may choose subjects other than the ones mentioned above after approval of BOS chairman.

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Course Structure for III & IV year

III YEAR I SEMESTER

S. No.	Course Code	Course Type	Course Title	Periods per week			C	Scheme of Examination Maximum Marks		
				L	T	P		Int.	Ext.	Total
1		PCC	Control Systems	3	0	0	3	30	70	100
2		PCC	Power systems - II	3	0	0	3	30	70	100
3		PCC	Power electronics	3	0	0	3	30	70	100
4		PEC	**Professional Elective - I**	3	0	0	3	30	70	100
			Special Electrical Machines							
			Electrical Distribution Systems							
			High Voltage Engineering							
			Digital Control Systems							
5		OEC	**Open elective – I**	3	0	0	3	30	70	100
6		SAC	English for Career	1	0	2	2	50	50	100
7		PCC	Control systems laboratory	0	0	3	1.5	50	50	100
8		PCC	Power electronics laboratory	0	0	3	1.5	50	50	100
9		MC	IPR and Patents	2	0	0	0	30	70	100
10		PR	Summer internship/ Mini Project-I	0	0	3	1.5	100	0	100
			TOTAL	**18**	**0**	**11**	**21.5**	**430**	**570**	**1000**

***** At the end of II year II semester, students must complete summer internship. This will be considered in III-I for 1.5 credits.**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Course Structure for III & IV year

III YEAR II SEMESTER

S. No.	Course Code	Course Type	Course Title	Periods per week			C	Scheme of Examination Maximum Marks		
				L	T	P		Int.	Ext.	Total
1		PCC	Switchgear and protection	3	0	0	3	30	70	100
2		PCC	Power system analysis	3	0	0	3	30	70	100
3		PCC	Microprocessors and Microcontrollers	3	0	0	3	30	70	100
4		PEC	**Professional Elective - II**	3	0	0	3	30	70	100
			Power system operation and control							
			Power semiconductor drives							
			Flexible AC transmission systems							
			Extra high voltage transmission							
5		OEC	**Open elective – II**	3	0	0	3	30	70	100
6		SAC	Optimization through electrical software	1	0	2	2	50	50	100
7		PCC	Microprocessors and Microcontrollers laboratory	0	0	3	1.5	50	50	100
8		PCC	Electrical simulation laboratory	0	0	3	1.5	50	50	100
9		PCC	Power systems laboratory	0	0	3	1.5	50	50	100
10		MC	Quantitative Aptitude and Reasoning	2	0	0	0	30	70	100
11			Mini Project-II							
			TOTAL	**18**	**0**	**11**	**21.5**	**380**	**620**	**1000**

***** At the end of III year II semester, students must complete Industrial/Research internship. This will be considered in IV-I for 1.5 credits.**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Course Structure for III & IV year

IV YEAR I SEMESTER

S. No.	Course Code	Course Type	Course Title	Periods per week			C	Scheme of Examination Maximum Marks		
				L	T	P		Int.	Ext.	Total
1		PEC	**Professional Elective - III**	3	0	0	3	30	70	100
			Grid integration of renewable energy sources							
			Smart grid communication and cyber security							
			Solar PV and micro energy technologies							
			Energy audit, conservation and management.							
2		PEC	**Professional Elective - IV**	3	0	0	3	30	70	100
			Power quality							
			Power system reforms							
			Utilization of electrical energy							
			Programmable Logic Controllers and Applications							
3		PEC	**Professional Elective - V**	3	0	0	3	30	70	100
			Power Converters for Battery Charging							
			Energy management systems and SCADA							
			Switched mode power converters							
			High voltage DC transmission							

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
Course Structure for III & IV year

4		OEC	**Open elective – III**	3	0	0	3	30	70	100
5		OEC	**Open elective – IV**	3	0	0	3	30	70	100
6		HSSE	Universal Human values II-Understanding Harmony	3	0	0	3	30	70	100
7		SAC	Simulation studies on electromagnetic transients software	1	0	2	2	50	50	100
8		PR	Industrial/Research internship	0	0	0	3	100	0	100
			TOTAL	**19**	**0**	**2**	**23**	**330**	**470**	**800**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
Course Structure for III & IV year

IV YEAR II SEMESTER

S. No.	Course Code	Course Type	Course Title	Periods per week			C	Scheme of Examination Maximum Marks		
				L	T	P		Int.	Ext.	Total
1		PR	Project work	0	0	0	12	60	140	200
			TOTAL	0	0	0	12	60	140	200

SKILL ADVANCED COURSE/SOFT SKILLS

English for career
Optimization through electrical software
Simulation studies on electromagnetic transients software

OPEN ELECTIVES OFFERED BY THE DEPARTMENT OF EEE

OPEN ELECTIVE - I	OPEN ELECTIVE - II	OPEN ELECTIVE - III	OPEN ELECTIVE - IV
Fundamentals of Utilization of electrical energy	Concepts of power system engineering	Fundamentals of smart grid technologies	Basics of electrical measurements and instrumentation

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