

Sardar Patel College of Engineering, Andheri (West), Mumbai 400058
Academic Book year 2020-21

ELECTRICAL ENGINEERING

M. Tech. in Power Electronics and Power System

Credit System

Year 2020-2021

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Credit System for M. Tech Electrical Engineering in Power Electronics and Power System Semester I Year 2020-2021

Sr. No	Course Type	Code	Course Name	Course Plan for Each Week (Hrs)			Credits	Evaluation (Points)						Total
				L	P	T		Test 1	Test 2	End Semester		End Semester Weightage (%)	In Semester Evaluation	
										Points	Hours			
1	Core I	PC-MTPX101	Advanced Power Electronics	3	--	--	3	20	20	100	3	60	--	100
2	Core II	PC-MTPX102	Computer Aided Power System Analysis	3	--	--	3	20	20	100	3	60	--	100
3	Programme Elective I	PE-MTPX 101-105	Programme Elective-I	3	--	1	4	20	20	100	3	60	25	125
4	Programme Elective II	PC-MTPX 101-105	Programme Elective-II	3	--	1	4	20	20	100	3	60	25	125
5	Core Laboratory I	PL-MTPX101	Advanced Power Electronics Laboratory	--	2	--	1	--	--	--	--	--	50	50
6	Core Laboratory II	PL-MTPX102	Computer Aided Power System Analysis Laboratory	--	2	--	1	--	--	--	--	--	50	50
7	Core Laboratory III	PL-MTPX103	Digital Simulation of Power Electronics System	--	2	--	1	--	--	--	--	--	50	50
8	Mandatory Course	MC-MTPX101	Research Methodology and IPR	2	--	--	2	20	20	100	3	60	--	100
9	Audit Course I	AU-MTPX101-102	Audit Course-I	2	--	--	AU	20	20	100	3	60	--	100
10	Online Course 1	OL-MTPX101		--	--	--	--	--	--	--	--	--	--	--
	Total			16	6	2	19	--	--	--	--	--	--	700

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- NOTE – (1) Duration of Test 1, Test 2 is of 1 hour. For passing, student must secure minimum 50% marks in each course with all heads of passing taken together and minimum 50% marks in the end semester examination.
- (2) Department will offer online course subject to availability of a course on <https://swayam.gov.in/>, availability of resources and enrolment of minimum 10 students opting for the course.
- (3) Student must choose two programme electives courses from those offered by the department in the semester.
- (4) L- Lecture, P- Lab, T-Tutorial.

List of Programme Electives I and II

Sr. No.	Code	Elective
1.	PE-MTPX101	Distributed Generation and Micro Grid
2.	PE-MTPX102	Power Electronics Applications to Renewable Energy
3.	PE-MTPX103	Modelling and Analysis of Electrical Machine
4.	PE-MTPX104	Reliability Assessment of Power System
5.	PE-MTPX105	Restructured power system

List of Audit Courses– I

Sr. No.	Code	Elective
1.	AU-MTPX101	English for research paper writing
2.	AU-MTPX102	Constitution of India

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Credit System for M. Tech Electrical Engineering in Power Electronics and Power System Semester II Year 2020-2021

Sr. No	Course Type	Code	Course Name	Course Plan for Each Week (Hrs)			Credits	Evaluation (Points)						Total
				L	P	T		Test 1	Test 2	End Semester		End Semester Weightage (%)	In Semester Evaluation	
										Points	Hours			
1	Core I	PC-MTPX 201	Power System Dynamics and Control	3	--	--	3	20	20	100	3	60	--	100
2	Core II	PC-MTPX 202	Advanced Control of Electrical Drives	3	--	--	3	20	20	100	3	60	--	100
3	Programme Elective III	PE-MTPX 201-205	Programme Elective - III	3	--	1	4	20	20	100	3	60	25	125
4	Programme Elective IV	PE-MTPX 201-205	Programme Elective - IV	3	--	1	4	20	20	100	3	60	25	125
5	Core Laboratory IV	PL-MTPX201	Power system dynamics and control Laboratory	--	2	--	1	--	--	--	--	--	50	50
6	Core Laboratory V	PL-MTPX202	Advanced Control of Electrical Drives Laboratory	--	2	--	1	--	--	--	--	--	50	50
7	Mini Project	PR-MTPX201	Mini Project		4		2	--	--	--	--	--	50	50
8	Audit Course II	AU-MTPX 201-202	Audit course- II	2	--	--	AU	20	20	100	--	--	--	100
9	Online Course 1	OL-MTPX201		--	--	--	--	--	--	--	--	--	--	--
	Total			14	8	2	18	--	--	--	--	--	--	700

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For passing, Student must secure minimum 50% marks in each course with all head of passing taken together and minimum 50% marks in the end semester examination

* Examined by supervisor and at least one internal examiner.

#- Contact hours with supervisor/mentor/guide = 4, \$-Self-learning hours = 12

Programme Electives III and IV

Sr. No.	Code	Elective
1.	PE-MTPX201	Advanced techniques in power system protection
2.	PE-MTPX202	Smart Grid Technologies
3.	PE-MTPX203	DSP Control in Power Electronics
4.	PE-MTPX204	Power Quality
5.	PE-MTPX205	Nonlinear control Theory

Audit Course– II

Sr. No.	Code	Elective
1.	AU-MTPX201	Disaster Management
2.	AU-MTPX202	Stress Management by Yoga
3.	AU-MTPX203	Linear Algebra and Matrix Computation

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NOTE: * Examined by supervisor and at least one internal examiner.

Contact hours with mentor/supervisor/guide,

\$ Self learning hours

For passing, Student must secure minimum 50% points in each Course with all head of passing taken together and minimum 50% points in the end semester examination

Programme Electives V

Sr. No.	Code	Elective
1.	PE-MTPX301	Artificial Intelligence
2.	PE-MTPX302	Optimization Techniques
3.	PE-MTPX303	Electric Vehicle Technology

Open Electives VI

Sr. No.	Code	Elective
1.	OE-MTPX301	Business Analytics
2.	OE-MTPX302	Industrial Safety
3.	OE-MTPX303	Operations Research
4.	OE-MTPX304	Cost Management of Engineering Projects
5.	OE-MTPX305	Waste to Energy

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Credit System for M. Tech Electrical Engineering in Power Electronics and Power System Semester IV Year 2020-2021

Sr. No.	Course Type	Code	Course Name	Course Plan for Each Week (Hrs)	Credits	Evaluation (Marks)		Total
						Report	Seminar	
1	Dissertation Stage-II	PR-MTPX401	Seminar (Pre-Synopsis)	2 [#] +28 ^{\$}	2	50*	50*	100
2		PR-MTPX402	Dissertation & Viva-Voce		14	100**	100**	200
Total					16	150	150	300

* Examined by supervisor and at least one internal examiner

** Examined by supervisor and one approved external examiner. #-Contact hours with mentor/supervisor/guide, \$-Self learning hours.

For passing, Student must secure minimum 50% points in each Course with all head of passing taken together and minimum 50% points in the end semester examination.

Total Course Credits = 19 + 18 + 17 + 16 = 70

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Laboratory work to include at least Eight Simulations/Programmes based on every module.