

# Indian Institute of Technology Palakkad

## Curriculum

**Program : Master of Technology**

**Stream : Power Electronics and Power Systems**

**Year : 2020 Onwards**

### Program Description

In the modern era, power electronics is a key enabling technology, and understanding of diverse disciplines like semiconductor devices, power converters, and control theory Power conversion techniques and their application in power systems, etc., are therefore essential to all power engineers.

**Vision:** "Develop and maintain a high-quality teaching and research environment in Power Electronics, Power Systems, and Control and to emerge as a centre of excellence for contributing towards society."

### Semester I

S. No	Code	Course Title	L	T	P	C	Category
1	EE5021	Power Converter Analysis and Design	3	0	0	3	PMT
2	EE5017	Power System Analysis And Operation	3	0	0	3	PMT
3	EE5019	Modelling and Analysis of Electrical Machines	3	0	0	3	PMT
4	EE5022	Synthesis of control	3	0	0	3	PMT
5	EE5xxx	Professional Elective - 1*	3	0	0	3	PME
6	GN5000	Communication and Technical Writing Skills <sup>1</sup>	2	0	0	0	IDC
		<b>Semester Total</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>15</b>	

**Notes if any.** \*Programme elective- Typically Elective offered by EE department and relevant to the M.Tech programme or relevant electives from other departments with the consent of faculty advisor.

<sup>1</sup>-Institute Core for all M.Tech Programs

## Semester II

S. No	Code	Course Title	L	T	P	C	Category
1	EE5015	Power Converters modulation, control and applications	3	0	0	3	PMT
2	EE5xxx	Professional Elective- 2	3	0	0	3	PME
3	EE5xxx	Professional Elective- 3	3	0	0	3	PME
4	EE5103	Power converters design lab	0	0	3	2	PML
5	EE5105	Power electronics simulation lab	0	0	3	2	PML
6	EE5101	Power systems simulation lab	0	0	3	2	PML
7	EE5xxx	Open Elective*	3	0	0	3	OE
		<b>Semester Total</b>	<b>12</b>	<b>0</b>	<b>9</b>	<b>18</b>	

### Notes if any.

*\*Students have the freedom to choose open elective in any of the semesters except 4th Sem. Ideally it is slotted in the second semester.*

## Summer Term

S. No	Code	Course Title	L	T	P	C	Category
1	PE5190	Internship/Mini-project	-	-	-	2	Internship
		<b>Semester Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	

## Semester III

S. No	Code	Course Title	L	T	P	C	Category
1	PE5110	Professional Major Project Phase -1	-	-	-	11	PMP
		<b>Semester Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	

## Semester IV

S. No	Code	Course Title	L	T	P	C	Category
1	PE5120	Professional Major Project Phase -2	-	-	-	12	PMP
		<b>Semester Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	

## Category-wise Summary

Category	Category Description	Credits
<b>PMT</b>	Professional Major Theory (Lecture based core courses)	15
<b>PME</b>	Professional Major Elective (Electives courses from program pool)	9
<b>OE</b>	Open Electives (Any post-graduate course)	3
<b>PMP</b>	Professional Major Practise (Lab based core courses)	6
	(Project/Internship based core courses)	23
	Internship	2
<b>IDC</b>	Interdisciplinary Course	0
	<b>Total</b>	<b>58</b>

### List of Available Professional Major Electives

1. Optimal Control
2. Sensors and Signal Conditioning Circuits
3. Control of Nonlinear Dynamical Systems
4. Electric Drives
5. Computational Methods in Electrical Engineering
6. Power System Protection
7. Renewable Energy Systems
8. Design of Analog Electronic Circuits and Systems
9. VLSI architectures for signal processing
10. Grid connected converters and control