Indian Institute of Technology Palakkad
Curriculum

Program : **Master of Technology**
Stream : **System-on-chip Design**
Year : **2024 Onwards**

This curriculum is designed to produce graduates with expertise at the intersection of devices, circuits and systems. At the end of this program, a student would be able to appreciate and apply advances made across domains to design better SoCs.

The credit requirement of the program is as follows:

Credit requirements :

Category of the course	Credits
Program Major Core (PMC)	19
Program Major Electives (PME)	6/9
Project Based Courses	24/21
Open Electives (OE)	6
Humanities and Social Sciences Elective (HSE)	
Communication Skills	1
Technical Writing	1
Total	57

Semester I

No.	Course code	Course Title	L	T	P	C	Category
1	EE5011	VLSI Design	3	0	0	3	PMC
2	EE5xxx	VLSI Design Lab	0	0	3	2	PMC

3	EE5009	Nanoelectronics for Circuits & Systems	3	0	0	3	PMC
4	CS3060	Computer Architecture	3	0	0	3	PMC
5	CS3160	Computer Architecture Lab	0	0	3	2	PMC
6	CS5107	Programming Lab	1	0	3	3	PMC
7	GN5xxx	Communication Skills	1	0	0	1	Institute Core
8	GN5xxx	Technical Writing	1	0	0	1	Institute Core
		Semester Total	12	0	9	18	

Semester II

No.	Course code	Course Title	L	T	P	C	Category
1	CS5102	SoC Design Lab	1	0	3	3	PMC
2		Program Elective 1	3	0	0	3	PME
3		Program Elective 2 or Mini Project	3/0	0/0	0/5	3	PME
4		Open Elective 1	3	0	0	3	OE
5		Open Elective 2	3	0	0	3	OE
		Semester Total	13/10	0	3/8	15	

Semester III

No.	Course code	Course Title	L	T	P	C	Category
1		Program Elective 3	3	0	0	3	PME
2	SD5110	M.Tech Project Phase 1	0	0	14	9	Project
		Semester Total	3	0	14	12	

Semester IV

No.	Course code	Course Title	L	T	P	C	Category
1	SD5120	M.Tech Project Phase 2	0	0	18	12	Project
		Semester Total	0	0	18	12	

A list of approved PME's can be found at (provide a link/list if available) :

1	EE5518	Nanoelectronic Devices
2	EE5606	Micro and Nanoscale Devices Laboratory
3	EE5516	VLSI Architectures for signal processing and machine learning
4	EE5525	Sensors and Signal Conditioning Circuits
5	EE5003	RF and Microwave Passive Circuits
6	EE6001	Design of Analog Circuits and Systems
7	EE5002	RF and Microwave Active Circuits
8	EE5005	Digital Image Processing
9	EE5531	Reinforcement learning based control
10	EE5610	Digital Controller for Energy Conversion
11	EE5001	RF Remote Sensing Systems
12	EE5526	Principles and design of MEMS
13	EE5530	Principles of SOC Functional Verification
14	CS5639	Topics in Networks
15	CS5510	Compiler Optimizations and Program Analysis
16	CS5002	Functional Programming
17	CS5016	Computational Methods and Applications
18	CS5633	Model Checking
19	CS5005	Parallel Programming
20	CS5012	AI for Cybersecurity
21	CS5104	Big Data Lab
22	DS5602	Computer Vision
23	CS5014	Foundations of Data Science and Machine Learning
24	CSXXXX	Algorithms for Big Data