

**COEP Technological University Pune  
(A Unitary Public University of Govt. of Maharashtra)**

**NEP 2020 Compliant**

Proposed Curriculum Structure

**M. Tech.**

**Electronics – VLSI Design**

**(Effective from: A.Y. 2024-25)**

**PG Program [M. Tech. Electronics – VLSI Design]  
Proposed Curriculum Structure  
w. e. f AY 2024-25**

**List of Abbreviations**

<b>Abbreviation</b>	<b>Title</b>	<b>No of courses</b>	<b>Credits</b>	<b>% of Credits</b>
PSMC	Program Specific Mathematics Course	1	3	4.41 %
PSBC	Program Specific Bridge Course	1	5	7.35 %
PCC	Program Core Course	5	18	26.47 %
PEC	Program Specific Elective Course	3	9	13.24 %
VSEC	Vocational and Skill Enhancement Course	2	18	26.47 %
OE	Open Elective	1	3	4.41 %
SLC	Self-Learning Course	2	6	8.82 %
AEC	Ability Enhancement Course	1	1	1.47 %
MLC	Mandatory Learning Course	2	3	4.41%
CCA	Co-curricular & Extracurricular Activities	1	1	1.47 %
	Mini Project	1	1	1.47 %
<b>Total</b>		<b>20</b>	<b>68</b>	<b>100%</b>

**PG Program [M. Tech. Electronics – VLSI Design]  
Proposed Curriculum Structure**

**Semester I**

Sr. No.	Course Category	Course Code	Course Name	Teaching Scheme				Credits
				L	T	P	S	
1.	PSMC	PSMC-01	Graph , Field and Ring Theory for Security and Physical design	3	--	--	1	3
2.	PSBC	PSBC-01	RTL Simulation and Synthesis	3	1	2	2	5
3.	PCC	PCC-01	Digital IC Design	3	--	2	2	4
4.	PCC	PCC-02	IC Fabrication Techniques	2	1	--	--	3
5.	AEC	AEC-01	Seminar	--	--	2	2	1
6.	PEC	PEC-01	Program Specific Elective –I a) Next generation computer Architectures b) Machine Learning c) SoC architecture d) Memory Technologies e) MEMS	3	--	--	1	3
7.	MLC	MLC-01	Research Methodology and Intellectual Property Rights	--	--	--	2	2
8.	MLC	MLC-02	Effective Technical Communication Skills	--	--	--	1	1
<b>Total</b>				<b>14</b>	<b>02</b>	<b>06</b>	<b>11</b>	<b>22</b>

**Semester II**

Sr. No.	Course Category	Course Code	Course Name	Teaching Scheme				Credits
				L	T	P	S	
1.	OE	OE-01	Open Elective( to be offered to other dept)	3	--	--	1	3
2.	PCC	PCC-03	Analog IC Design	3	--	2	1	4
3.	PCC	PCC-04	Verification using SV and UVM	2	--	2	--	3
4.	PCC	PCC-05	VLSI Physical Design	2	1	2	--	4
5.	PEC	PEC-02	Program Specific Elective –II a) VLSI Testing b) VLSI architectures for Signal Processing c) Hardware / Software Co-design d) Mixed Signal Circuit Design	3	--	--	1	3

			e) Device Modeling					
6.	PEC	PEC-03	Program Specific Elective –III a) Advanced VLSI Design b) Nano-electronic material and devices c) Hardware Security d) RF Circuit Design	3	--	--	1	3
7.			Mini project	--	--	2	2	1
8.	CCA	CCA-01	Liberal Learning Course	--	--	2	2	1
<b>Total</b>				<b>16</b>	<b>01</b>	<b>10</b>	<b>08</b>	<b>22</b>

➤ Exit option to qualify for **PG Diploma in VLSI Design:**

- Eight weeks domain specific industrial internship in the month of June-July after successfully completing first year of the program.

### Semester-III

Sr. No.	Course Category	Course Code	Course Name	Teaching Scheme				Credits
				L	T	P	S	
1.	VSEC	VSEC-01	Dissertation Phase – I	--	--	18	12	9
2.	SLC	SLC-01	Massive Open Online Course –I	3	--	--	3	3
<b>Total</b>				<b>3</b>	<b>--</b>	<b>18</b>	<b>15</b>	<b>12</b>

### Semester-IV

Sr. No.	Course Category	Course Code	Course Name	Teaching Scheme				Credits
				L	T	P	S	
1.	VSEC	VSEC-02	Dissertation Phase – II	--	--	18	12	9
2.	SLC	SLC-02	Massive Open Online Course –II	3	--	--	3	3
<b>Total</b>				<b>3</b>	<b>--</b>	<b>18</b>	<b>15</b>	<b>12</b>

➤ **MOOC Courses Identified:**

- Real Time Embedded Systems
- VLSI design for Fault Tolerance and Testability
- Parallel Computing
- Advanced IOT Applications