COEP Technological University Pune

(A Unitary Public University of Govt. of Maharashtra)

NEP 2020 Compliant

Proposed Curriculum Structure

M. Tech.

Electronics – Embedded System and Computing

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

PG Program [M. Tech. Electronics – Embedded System and Computing]

Proposed Curriculum Structure

W. e. f AY 2024-25

List of Abbreviations

Abbreviation	Title	No of courses	Credits	% of Credits
PSMC	Program Specific Mathematics Course	1	4	5.88 %
PSBC	Program Specific Bridge Course	1	3	4.41 %
PCC	Program Core Course	5	15	22.06 %
PEC	Program Specific Elective Course	3	9	13.24 %
LC	Laboratory Course	5	8	11.76 %
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	--	--
CCA	Co-curricular & Extracurricular Activities	1	1	1.47 %
	Total	**25**	**68**	**100%**

PG Program [M. Tech. Electronics – Embedded System and Computing]

Proposed Curriculum Structure

Semester I

Sr. No.	Course Category	Course Code	Course Name	Teaching Scheme				Credits
				L	T	P	S	
1.	PSMC	PSMC-01	Statistics, Probability, Graph and Field Theory	3	1	--	1	4
2.	PSBC	PSBC-01	Software Tools for Embedded system and Edge computing	3	--	2	2	4
3.	PCC	PCC-01	IoT Architecture and Computing	3	--	--	--	3
4.	PCC	PCC-02	Processors and Controllers: Architecture and application programming	3	--	--	--	3
5.	LC	LC-01	IoT Architecture and Computing Lab	--	--	3	2	2
6.	LC	LC-02	Processor and Microcontrollers Programming Lab	--	--	3	2	2
7.	AEC	AEC-01	Seminar	--	--	2	2	1
8.	PEC	PEC-01	Program Specific Elective –I a) RTL Simulation and Synthesis b) Advanced Digital Signal and Image Processing c) Hardware and Software Co-Design (Advanced Digital Design) d) IoT sensors-actuators and Communication protocols e) Automotive Embedded Product Development *	3	--	--	1	3
9.	MLC	MLC-01	Research Methodology and Intellectual Property Rights	--	--	--	2	--
10.	MLC	MLC-02	Effective Technical Communication Skills	--	--	--	1	--
			Total	**15**	**01**	**10**	**13**	**22**

- *Note: '*' Industry based Elective Courses to be offered for selective students.*

PG Program [M. Tech. Electronics -Embedded System and Computing]

Proposed Curriculum Structure

Semester II

Sr. No.	Course Category	Course Code	Course Name	Teaching Scheme				Credits
				L	T	P	S	
1.	OE	OE-01	Open Elective Networked Embedded System Design	3	--	--	1	3
2.	PCC	PCC-03	Embedded System Security	3	--	--	--	3
3.	PCC	PCC-04	Embedded Operating system	3	--	--	--	3
4.	PCC	PCC-05	Data analytics on Edge Computing	2	1	--	--	3
5.	LC	LC-03	Embedded Security Lab	--	--	2	2	1
6.	LC	LC-04	Embedded OS Lab	--	--	2	2	1
7.	LC	LC-05	Data analytics on Edge computing Lab	--	--	2	2	1
8.	PEC	PEC-02	Program Specific Elective –II a) AD-CMOS b) Cloud Computing c) AI-ML d) Automotive Embedded Hardware Development *	3	--	--	1	3
9	PEC	PEC-03	Program Specific Elective –III a) Advanced VLSI architecture b) SCADA systems Applications c) Wireless Sensor Network d) Automotive Embedded Software Development *	3	--	--	1	3
10.	CCA	CCA-01	Liberal Learning Course	--	--	2	2	1
			Total	**17**	**01**	**08**	**11**	**22**

- *Note: '*' Industry based Elective Courses to be offered for selective students.*
- Exit option to qualify for **PG Diploma in Embedded System and Computing.**
  - Eight weeks domain specific industrial internship in the month of June-July after successfully completing first year of the program.

PG Program [M. Tech.– Embedded System and Computing]

Proposed Curriculum Structure

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
			Total	**3**	**--**	**18**	**15**	**12**

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
			Total	**3**	**--**	**18**	**15**	**12**

- **MOOC Courses Identified:**
  - Real Time Embedded Systems
  - CMOS Design
  - Edge Computing
  - Advanced IOT Applications

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