M.Tech in VLSI Design

1. Programme Structure(70 Total Credits)

1. Professional Core Courses (C)
(5 Courses)

Course Code	Course Title	Hours/ Week L	T	P	C
20MAC507T	Applied Mathematics for VLSI	4	0	0	4
20ECC531J	Digital Systems Design Using HDL	3	0	2	4
20ECC532J	Solid State Devices and Modeling	3	0	2	4
20ECC533J	Analog Circuits and System Design	3	0	2	4
20ECC534J	VLSI Physical Design Automation	3	0	2	4
Total Learning Credits					**20**

2. Professional Elective Courses (E)
(4 Courses)

Course Code	Course Title	Hours/ Week L	T	P	C
20ECE531T	Signal processing Techniques for VLSI	3	1	0	4
20ECE532T	Hardware Design and Scripting Language				
20ECE533T	Low-Power CMOS Circuit Design	3	1		
20ECE534T	Reconfigurable Computing Systems	3	1	0	4
20ECE535T	Cryptography and Hardware Security in VLSI	4	0		
20ECE536T	Process and Device Simulation using CAD	3	1		
20ECE537T	Diagnosis and Reliable Design of Digital Systems	3	1	0	4
20ECE538T	High Performance ASIC Design	4	0		
20ECE631T	Mixed Signal IC Design	3	1		
20ECE632T	Radio Frequency VLSI	3	1	0	4
20ECE633T	Machine Learning in VLSI	3	1		
Total Learning Credits					**16**

3. Skill Enhancement Courses(S)
(2 Courses)

Course Code	Course Title	Hours/ Week L	T	P	C
20GNS501J	Research Publishing and Presenting Skills	*1*	*0*	*2*	*2*
20ECS500T	Research Methodology for Electronics and Communication Engineers	*3*	*0*	*0*	*3*
Total Learning Credits					**5**

4. Open Elective Courses (O)
(Any 1 Course)

Course Code	Course Title	Hours/ Week L	T	P	C
20MBO601T	*Business Analytics*	*3*	*0*	*0*	*3*
20MEO601T	*Industrial Safety*	*3*	*0*	*0*	*3*
20MAO601T	*Operations Research*	*3*	*0*	*0*	*3*
20MBO602T	*Cost Management*	*3*	*0*	*0*	*3*
20NTO601T	*Composite Materials*	*3*	*0*	*0*	*3*
20CEO601T	*Waste to Energy*	*3*	*0*	*0*	*3*
20GNP620T	*Massive Open Online Courses (MOOC)*	*3*	*0*	*0*	*3*
Total Learning Credits					**3**

5. Project Work, Internship In Industry / Higher Technical Institutions(P)

Course Code	Course Title	Hours/ Week L	T	P	C
20ECP631L	*Internship (4-6 weeks during 2nd sem vacation) Or Minor Project*	-	-	-	*4*
20ECP632L		*0*	*0*	*8*	
20ECP633L	*Project Work Phase I*	*0*	*0*	*12*	*6*
20ECP634L	*Project Work Phase II*	*0*	*0*	*32*	*16*
Total Learning Credits					**26**

6. Audit Courses (A)
(Any 2 Courses)

Course Code	Course Title	Hours/ Week L	T	P	C
20CEA501J	*Disaster Management*	*1*	*0*	*1*	*0*
20LEA501J	*Constitution of India*	*1*	*0*	*1*	*0*
20LEA502J	*Value Education*	*1*	*0*	*1*	*0*
20GNA501J	*Physical and Mental Health using Yoga*	*1*	*0*	*1*	*0*

7. Mandatory Courses (M)
(3 Courses)

Course Code	Course Title	Hours/ Week L	T	P	C
20PDM501T	*Career Advancement for Engineers – I*	*1*	*0*	*1*	*0*
20PDM502T	*Career Advancement for Engineers – II*	*1*	*0*	*1*	*0*
20PDM601T	*Career Advancement for Engineers –III*	*1*	*0*	*1*	*0*

2. Implementation Plan

Semester - I					
Code	Course Title	Hours/ Week			C
		L	T	P	
20MAC507T	Applied Mathematics for VLSI	4	0	0	4
20ECC531J	Digital Systems Design Using HDL	3	0	2	4
20ECC532J	Solid State Devices and Modeling	3	0	2	4
20ECE531T	Signal processing Techniques for VLSI	3	1	0	4
20ECE532T	Hardware Design and Scripting Language	3	1		
20GNS501J	*Research Publishing and Presenting Skills*	*1*	*0*	*2*	*2*
20PDM501T	*Career Advancement for Engineers – I*	*1*	*0*	*1*	*0*
	Audit Course - I	*1*	*0*	*1*	*0*
Total Learning Credits					18

Semester - II					
Code	Course Title	Hours/ Week			C
		L	T	P	
20ECC533J	Analog Circuits and System Design	3	0	2	4
20ECC534J	VLSI Physical Design Automation	3	0	2	4
20ECE533T	Low-Power CMOS Circuit Design	3	1	0	4
20ECE534T	Reconfigurable Computing Systems	3	1		
20ECE535T	Cryptography and Hardware Security in VLSI	4	0		
20ECE536T	Process and Device Simulation using CAD	3	1	0	4
20ECE537T	Diagnosis and Reliable Design of Digital Systems	3	1		
20ECE538T	High Performance ASIC Design	4	0		
20ECS500T	*Research Methodology for Electronics and Communication Engineers*	*2*	*0*	*2*	*3*
20PDM502T	*Career Advancement for Engineers – II*	*1*	*0*	*1*	*0*
	Audit Course - II	*1*	*0*	*1*	*0*
Total Learning Credits					19

Semester - III					
Code	Course Title	Hours/ Week			C
		L	T	P	
20ECE631T	Mixed Signal IC Design	3	1	0	4
20ECE632T	Radio Frequency VLSI	3	1		
20ECE633T	Machine Learning in VLSI	3	1		
	Open Elective	*3*	*0*	*0*	*3*
	MOOC	-	-	-	
20ECP631L	*Internship (4-6 weeks during 2nd Sem vacation)*	-	-	-	*4*
20ECP632L	*Minor Project*	*0*	*0*	*8*	
20ECP633L	*Project Work Phase I*	*0*	*0*	*12*	*6*
20PDM601T	*Career Advancement for Engineers – III*	*1*	*0*	*1*	*0*
Total Learning Credits					17

Semester - IV					
Code	Course Title	Hours/ Week			C
		L	T	P	
20ECP634L	*Project Work Phase II*	*0*	*0*	*32*	*16*
Total Learning Credits					16