B.N.M. Institute of Technology

An Autonomous Institution under VTU

Department of Electronics and Communication Engineering

Scheme of Teaching and Examination - Autonomous Effective from Academic year 2022-23

I Semester M. Tech (VLSI Design and Embedded Systems)

Sl. No.	Course Type	Course Code	Course Title	Teaching Department	Teaching Hours /Week					Examination			
					L	T	P	J	Hours/ Week	Credits	CIA Marks	SEA Marks	Total Marks
1	PCC	22VDE211	ASIC Design	ECE	3	-	-	-	3	3	50	50	100
2	PCC	22VDE212	Real Time Embedded Systems	ECE	3	-	-	-	3	3	50	50	100
3	PCI	22VDE213	CMOS Circuit Design	ECE	3	-	2	-	5	4	50	50	100
4	PCI	22VDE214	ARM Cortex M4 Microcontroller	ECE	2	-	2	-	4	3	50	50	100
5	PBL	22VDE215	Advanced Digital System Design using Verilog	ECE	2	-	2	2	6	4	50	50	100
6	PEC	22VDEP216X	22VDEP2161 Advances in VLSI Design	ECE	3	-	-	-	3	3	50	50	100
	PEC		22VDEP2162 Nano Technology										
	PEC		22VDEP2163 Internet of Things and its										
7	PCC	22VDE217	Research Methodology & IPR	ECE	2	-	-	-	2	2	50	50	100
TOTAL					18	0	6	2	26	22	350	350	700

L-Theory lecture, T – Tutorial, P – Practical, J – Project NCMC- Non Credit Mandatory Course
CIA: Continuous Internal Assessment, SEA: Semester End Assessment

Note: PCC: Professional Core Course, **HSS:** Humanity and Social Science & Management Courses, **PCI:** Professional Core Integrated
PBL: Project Based Learning **AEC:** Ability Enhancement Courses, **PEC:** Professional Elective, **INT:** Summer Internship, **PRJ:** Project Work

Credit definition: 1 hour Lecture (L) per week = 1 Credit	2 hours Tutorial (T) per week = 1 Credit
2 hours Practical /Drawing (P) per week = 1 Credit	2 hours Project Component (J) per week = 1 Credit
(a) 4 Credit courses are to be designed for 50 hours Teaching – Learning process.	(b) 3 Credit courses are to be designed for 40 hours Teaching – Learning process.
(c) 2 Credit courses are to be designed for 25 hours Teaching – Learning process	(d) 1 Credit course are to be designed for 12-15 hours Teaching – Learning process

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II Semester M. Tech (VLSI Design and Embedded Systems)

Sl. No	Course Type	Course Code	Course Title		Teaching Department	Teaching Hours /Week					Examination			
						L	T	P	J	Hours/ Week	Credits	CIA Marks	SEA Marks	Total Marks
1	PCC	22VDE221	VLSI Testing and Testability		ECE	3	-	-	-	3	3	50	50	100
2	PCC	22VDE222	Advanced Computer Architecture		ECE	3	-	-	-	3	3	50	50	100
3	PCI	22VDE223	Low Power VLSI Design		ECE	2	-	2	-	4	3	50	50	100
4	PCI	22VDE224	Design of Analog and Mixed Mode VLSI Circuits		ECE	3	-	2	-	5	4	50	50	100
5	PBL	22VDE225	System Verilog for Verification		ECE	2	-	2	2	6	4	50	50	100
6	PEC	22VDEP226X	22VDEP2261	Reconfigurable Computing	ECE	3	-	-	-	3	3	50	50	100
	PEC		22VDEP2262	Static Timing Analysis										
	PEC		22VDEP2263	Wearable Technology										
7	PCC	22VDE227	Project Management and Finance		ECE	2	-	-	-	2	2	50	50	100
TOTAL						18	0	6	2	26	22	350	350	700

Summer Internship to be carried out during the vacation between II & III Semester

Summer Internship - I (22VDEI235): All the students registered to II year of BE shall have to undergo mandatory internship of 4 weeks during II semester or III semester vacation. Semester End Assessment will be conducted in III semester and the prescribed credit will be included. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequent examination after satisfying the internship requirements. (The faculty coordinator or mentor has to monitor the students' internship progress and interact to guide them for the successful completion of the internship.)

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III Semester M. Tech (VLSI Design and Embedded System)

Sl. No	Course Type	Course Code	Course Title		Teaching Department	Teaching Hours /Week				Hours /Week	Examination			
						L	T	P	J		Credits	CIA Marks	SEA Marks	Total Marks
1	PCC	22VDE231	CMOS RF VLSI Design		ECE	3	-	-	-	3	3	50	50	100
2	PCC	22VDE232	CAD for Digital Systems		ECE	3	-	-	-	3	3	50	50	100
3	PEC	22VDEP233X	22VDEP2331	VLSI Design for Signal Processing	ECE	3	-	-	-	3	3	50	50	100
	PEC		22VDPE2332	Machine Learning using Python			-	-	-					
	PEC		22VDEP2333	Real Time Systems			-	-	-					
4	PEC	22VDEP234X	22VDEP234X	MOOC/NPTEL	ECE	3	-	-	-	3	3	50	50	100
5	INT	22VDEI235	Internship			-	-	6	-	6	3	50	50	100
6	PRJ	22VDEJ236	Project Work Phase-1			-	-	-	10	10	5	-	100	100
TOTAL						12	-	6	10	28	20	250	350	600

Summer Internship to be carried out during the vacation between II & III Semester

Summer Internship - I (22VDEI235): All the students registered to II year of BE shall have to undergo mandatory internship of 4 weeks during II semester or III semester vacation. Semester End Assessment will be conducted in III semester and the prescribed credit will be included. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequent examination after satisfying the internship requirements. (The faculty coordinator or mentor has to monitor the students' internship progress and interact to guide them for the successful completion of the internship.)

Project work:Phase-1 (22VDEJ236): Based on the abilities of the students and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student. The progress of the project work will be evaluated continuously. There will be 2 seminars in 2 phases, evaluated by a panel of faculty members with HOD as the Chairperson.

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IV Semester M. Tech (VLSI Design and Embedded System)

Sl. No	Course Type	Course Code	Course Title	Teaching Department	Teaching Hours /Week					Examination			
					L	T	P	J	Hours/ Week	Credits	CIA Marks	SEA Marks	Total Marks
1	PEC	22VDEP241X	MOOC/NPTEL Self learning courses on latest trends in VLSI and Embedded Area	Online	3	-	-	-	3	3	50	50	100
2	PRJ	22VDEJ242	Project Work Phase-2	ECE	-	-	-	26	26	13	50	50	100
TOTAL					3	-	-	26	29	16	100	100	200

Project work:Phase-2 (22VDEJ242): Based on the abilities of the students and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student. The progress of the project work will be evaluated continuously. There will be 2 seminars in 2 phases and one final presentation with demonstration which are evaluated by a panel of faculty members with HOD as the Chairperson.