

4-year B. Tech. Electronics Engineering (VLSI Design and Technology)
w.e.f. 2023-24 Batch

The B. Tech Electronics Engineering program with a specialization in VLSI Design and Technology at Jaypee Institute of Information Technology (JIIT) is a sought-after course that prepares students for a rewarding career in the field of Very Large Scale Integration (VLSI). This program combines a comprehensive curriculum with hands-on experience to provide students with a deep understanding of electronics and chip design. The curriculum covers essential topics in electronics and VLSI, including digital and analog circuit design, microprocessors, and ASIC/FPGA design methodologies. Students gain practical skills through laboratory sessions and projects that involve designing and simulating integrated circuits using industry-standard tools. Industry engagement is a crucial aspect of the program. Guest lectures, workshops, and industrial visits connect students with industry trends and practices, preparing them for the demands of the VLSI sector. With state-of-the-art facilities and experienced faculty, students receive a well-rounded education that blends theoretical knowledge with practical application. Upon completion, graduates are equipped with the skills to pursue careers in VLSI design, ASIC/FPGA development, and related fields. The program's emphasis on hands-on learning, industry exposure, and a rigorous curriculum positions graduates for success in the competitive electronics industry.

FIRST SEMESTER

Sr. No.	Course Code	Title	Contact Hours				Credits
			L	T	P	Total	
3 WEEKS COMPULSORY INDUCTION PROGRAM (UHV-I)							
1.	15B11MA111	Mathematics-1	3	1	0	4	4
2.	15B11PH111	Physics-1	3	1	0	4	4
3.	15B11CI111	Software Development Fundamentals-I	3	1	0	4	4
4.	15B11HS112	English	1	0	2	3	2
5.	15B17PH171	Physics Lab-1	0	0	2	2	1
6.	15B17CI171	Software Development Lab-I	0	0	4	4	2
7.	18B15GE112	Workshop	0	0	3	3	1.5
		TOTAL				24	18.5

SECOND SEMESTER

Sr. No.	Course Code	Title	Contact Hours				Credits
			L	T	P	Total	
1.	15B11MA211	Mathematics-2	3	1	0	4	4
2.	15B11PH211	Physics-2	3	1	0	4	4
3.	15B11EC111	Electrical Science-I	3	1	0	4	4
4.	15B11CI211	Software Development Fundamentals-II	3	1	0	4	4
5.	15B17PH271	Physics Lab-2	0	0	2	2	1
6.	15B17EC171	Electrical Science Lab-I	0	0	2	2	1
7.	15B17CI271	Software Development Lab-II	0	0	2	2	1
8.	22B12HS111	Life Skills & Professional Communication Lab	0	0	2	2	0
9.	18B15GE111	Engineering Drawing & Design			3	3	1.5
		TOTAL				27	20.5

THIRD SEMESTER

Sr. No.	Course No.	Title	Contact Hours				Credits
			L	T	P	Total	
1.	15B11MA301	Probability and Random Processes	3	1	0	4	4
2.	24B21EC211	Electronic Devices	3	0	0	3	3
3.	24B25EC211	Electronic Devices	0	0	2	2	1
4.	18B11EC214	Signals & Systems	3	1	0	4	4
5.	18B11EC215	Digital Circuit Design	3	1	0	4	4
6.	18B15EC215	Digital Circuit Design Lab	0	0	2	2	1
7.	19B13BT211	Environmental Studies	3	0	0	3	Qualifying
8.	15B11EC211	Electrical Science-II	3	1	0	4	4
9.	24B11MA211	Numerical Techniques	2	0	0	2	2
		TOTAL				28	23

FOURTH SEMESTER

Sr. No.	Course No.	Title	Contact Hours				Credits
			L	T	P	Total	
1.	15B11EC411	Analogue Electronics	3	1	0	4	4
2.	15B17EC471	Analogue Electronics Lab	0	0	2	2	1
3.	xxxxxxxxx	Microcontrollers and Computer Architecture	3	0	0	3	3
4.	xxxxxxxxx	Microcontrollers Lab	0	0	2	2	1
5.	18B11EC212	Analog and Digital Communication	3	1	0	4	4
6.	xxxxxxxxx	Introduction to Microfabrication Technology	3	0	0	3	3
7.	xxxxxxxxx	Introduction to Microfabrication Lab {Foundry Familiarization workshop / MOOC virtual lab}	0	0	2	2	1
8.	xxxxxxxxx	Introduction to VLSI lifecycle	0	0	2	2	1
9.	xxxxxxxxx	Universal Human Values (UHV)*	2	1	0	3	3
		TOTAL				25	21

FIFTH SEMESTER

Sr. No.	Course No.	Title	Contact Hours				Credits
			L	T	P	Total	
1.	xxxxxxxxxx	HSS Elective-1	3	0	0	3	3
2.	15B11EC413	Digital Signal Processing	3	1	0	4	4
3.	18B15EC313	Embedded Systems/IOT Lab	0	0	2	2	1
4.	15B1NEC733	Fundamentals of Embedded Systems (DE-1)	3	0	0	3	3
5.	18B15EC312	Electromagnetic Field Theory Lab	0	0	2	2	1
6.	18B11EC315	VLSI Design	3	1	0	4	4
7.	18B11EC312	Electromagnetic Field Theory	3	1	0	4	4
8.	18B15EC315	VLSI Design Lab	0	0	2	2	1
9.	15B11EC613	Control Systems	3	0	0	3	3
10.	15B19EC591	Minor Project – 1				4	2
11.	18B12HS311	Indian Constitution & Traditional Knowledge	3	0	0	3	Qualifying
		TOTAL				34	26

SIXTH SEMESTER

Sr. No.	Course No.	Title	Contact Hours				Credits
			L	T	P	Total	
1.	17B1NEC736	Essentials of VLSI Testing (DE-2)	3	0	0	3	3
2.	xxxxxxxxxx	Semiconductor Equipment Design and Technology (DE-3)	3	0	0	3	3
3.	xxxxxxxxxx	Semiconductor Materials Synthesis and Characterization	3	0	0	3	3
4.	xxxxxxxxxx	Open Elective - 1	3	0	0	3	3
5.	xxxxxxxxxx	Selected Value Added Course	2	0	0	2	Audit
6.	xxxxxxxxxx	VLSI Verification and Testing Lab	0	0	2	2	1
7.	15B19EC691	Minor Project - 2	0	0	0	4	2
8.	xxxxxxxxxx	HSS Elective - 2	2	1	0	3	3
		TOTAL				23	18

SEVENTH SEMESTER

Sr. No.	Course No.	Title	Contact Hours				Credits
			L	T	P	Total	
1.	Xxxxx	Discipline Elective – 4	3			3	3
2.	Xxxxx	Discipline Elective – 5	3			3	3
3.	Xxxxx	Discipline Elective - 6	3	-	-	3	3
4.	Xxxxx	Open Elective - 2	3		-	3	3
5.	15B19 EC791	Major Project Part-1	-	-		8	4
6		Summer Training Viva	-	-	-	-	Qualifying
TOTAL						20	16

EIGHTH SEMESTER

Sr. No.	Course No.	Title	Contact Hours				Credits
			L	T	P	Total	
1.	Xxxxx	Discipline Elective – 7	3			3	3
2.	Xxxxx	Discipline Elective - 8	3			3	3
3.	Xxxxx	Open Elective -3	3		-	3	3
4.	15B19E C891	Major Project Part-2	-	-		16	8
TOTAL						25	17

Total Credits: 160