

School of Engineering and Technology

2025-26 B. Tech ECE (VLSI)

First Year - Autumn Semester

Course Code	Course Title	Contact Hours Per Week			Credits	ETE Duration	Weightage		
		L	T	P			CW	MTE	ETE
UC 23.101	Human Values & Professional Ethics	2	0	0	2	3	10	40	50
MA 23.101	Mathematics I	3	1	0	4	3	10	40	50
CY 23.101	Engineering Chemistry	3	0	0	3	3	10	40	50
EC 25.101	Basic of Electronics Engineering	3	0	0	3	3	10	40	50
CS 23.101	Programming for Problem Solving	3	0	0	3	3	10	40	50
ME 23.111	Computer Aided Engineering Drawing	0	0	4	2	2	20	20	40
CY 23.111	Chemistry Laboratory	0	0	2	1	2	50	-	50
EC 23.111	Electronics Laboratory	0	0	2	1	2	50	-	50
CS 23.111	Programming Laboratory	0	0	4	2	2	50	-	50
CY 23.102	Environmental Sciences	2	0	0	2	3	10	40	50
PB 25.101	Project Based Learning	0	0	2	1	-	-	50	50
SF 101	Personal Grooming and Fine Dining (Non Graded)	0	0	2	1	2	50		50
Total		16	1	16	24				

First Year -Spring Semester

Course Code	Course Title	Contact Hours Per Week			Credits	ETE Duration (Hours)	Weightage		
		L	T	P			CW	MTE	ETE
UC 23.102	Pragmatic English Communication	2	0	0	2	3	10	40	50
MA 23.102	Mathematics II	3	1	0	4	3	10	40	50
PY 23.101	Engineering Physics	3	0	0	3	3	10	40	50
ME 25.101	Applied Mechanics	3	0	0	3	3	10	40	50
EE 25.101	Basic Electrical Engineering	3	0	0	3	3	10	40	50
CS 23.102	Object Oriented Programming through C++	3	0	0	3	3	10	40	50
PY 23.111	Physics Laboratory	0	0	2	1	2	50	-	50
EE 23.111	Electrical Laboratory	0	0	2	1	2	50	-	50
CS 23.112	Object Oriented Programming Laboratory	0	0	2	1	2	50	-	50
ME 23.112	Mechanical Workshop	0	0	2	1	2	50	-	50
PB 25.102	Project Based Learning	0	0	2	1	-	-	50	50
SF 102	Social Grooming , Home & Decor and Business communication (Non Graded)	0	0	2	1	2	50		50
Total		17	1	12	23				

*Project Based Learning (PBL) will be conducted in the groups of 2-3 students.

Second Year - Autumn Semester

Course Code	Course Title	Contact Hours Per Week			Credits	ETE Duration (Hours)	Weightage		
		L	T	P			CW	MTE	ETE
MA 23.201	Mathematics-III	3	1	0	4	3	10	40	50
CS 23.205	General Purpose Programming	3	0	0	3	3	10	40	50
EC 23.201	Electronics Devices and Circuits	3	0	0	3	3	10	40	50
EC 23.205	Principles of Electromagnetics	3	0	0	3	3	10	40	50
EE 23.203	Network Analysis and Synthesis	3	0	0	3	3	10	40	50
CS 23.203	Data Structures	3	0	0	3	3	10	40	50
CS 23.253	Data Structures Laboratory	0	0	2	1	2	50	-	50
EC 23.221	Electronics Devices and Circuits Laboratory	0	0	2	1	2	50	-	50
EE 23.223	Network Analysis and Synthesis Laboratory	0	0	2	1	2	50	-	50
CS 23.255	General Purpose Programming laboratory	0	0	2	1	2	50	-	50
PB 25.201	Project Based Learning	0	0	2	1	-	-	50	50
SF 201	Personal Grooming, Fine Dining and Home Safety (Non Graded)	0	0	2	1	2	50		50
Total		17	1	12	24				

Second Year -Spring Semester

Course Code	Course Title	Contact Hours Per Week			Credits	ETE Duration (Hours)	Weightage		
		L	T	P			CW	MTE	ETE
UC 25.201	Management and Entrepreneurship	2	0	0	2	2	10	40	50
UE	University Elective-I	3	0	0	3	3	20	00	80
EC 23.202	Digital Electronics	3	0	0	3	3	10	40	50
EC 23.204	Integrated Circuits and Applications	3	0	0	3	3	10	40	50
EC 23.206	Semiconductor Physics	3	1	0	4	3	10	40	50
CS 23.202	Advanced Programming	3	0	0	3	3	10	40	50
EC 23.222	Integrated Circuits and Applications Laboratory	0	0	2	1	2	50	-	50
EC 23.224	Digital Electronics Laboratory	0	0	2	1	2	50	-	50
CS 23.252	Advanced Programming Laboratory	0	0	2	1	2	50	-	50
PB 25.202	Project Based Learning	0	0	2	1	-	-	50	50
SF 202	Social Grooming and Professional Skills (Non Graded)	0	0	2	1	2	50		50
Total		17	0	10	22				

*Project Based Learning (PBL) will be conducted in the groups of 2-3 students.

Third Year - Autumn Semester										
Course Code	Course Title	Contact Hours Per Week			Credits	ETE	Duration	Weightage		
		L	T	P				CW	MTE	ETE
EC 23.301	Microprocessor and Microcontroller	3	0	0	3	3		10	40	50
EC 23.303	Principles of Analog Communication	3	0	0	3	3		10	40	50
EC 23.302	VLSI Design	3	0	0	3	3		10	40	50
EC 23.307	Microwave Engineering	3	0	0	3	3		10	40	50
	Program Elective-1*	0	0	0	3			Based on MOOC		
EC 23.321	Analog Communication Laboratory	0	0	2	1	2		50	-	50
EC 23.322	VLSI Laboratory	0	0	2	1	2		50	-	50
EC 23.325	Microprocessor and Microcontroller	0	0	2	1	2		50	-	50
EC 23.327	Microwave Laboratory	0	0	2	1	2		50	-	50
EC 23.329	Summer Internship Project-1***	0	0	0	2	-		100		
EC 23.331	Project-1	0	0	4	2				50	50
GE 25.301	Proficiency (Non-Credit, Non-Graded)	-	-	-	1			100		
	Total	15	0	14	23					

Third Year -Spring Semester										
Course Code	Course Title	Contact Hours Per Week			Credits	ETE	Duration	Weightage		
		L	T	P				CW	MTE	ETE
EE 23.303	Control System Engineering	3	0	0	3	3		10	40	50
EC 23.305	Signal Processing and Applications	3	0	0	3	3		10	40	50
EC 23.304	Advanced Radio Access Network	3	0	0	3	3		10	40	50
EC 23.316	Elements of Digital VLSI Design	3	0	0	3	3		10	40	50
EC 23.308	Antenna & Wave Propagation	3	0	0	3	3		10	40	50
EC 23.318	Technical Seminar	0	0	2	1			100		
EC 23.323	Digital Signal Processing Laboratory	0	0	2	1	2		50	-	50
EC 23.324	Antenna Laboratory	0	0	2	1	2		50	-	50
EC 23.332	Digital VLSI Design Laboratory	0	0	2	1	2		50	-	50
EC 23.328	Project-2	0	0	4	2				50	50
GE 25.302	Proficiency (Non-Credit, Non-Graded)	-	-	-	1			100		
	Total	15	0	14	21					

* The course may be taken through MOOC. NPTEL/SWAYAM/Coursera will be the authorized platform for MOOC course. A minimum 8 week duration is required to earn 3 credits. After successful completion of this MOOC course, the student shall provide the successful completion status/certificate to the University (COE) through HOD/NPTEL/Coursera coordinator.

***Summer Internship Project-1 will be carried out during the summer vacation, specifically between the end of the second year and the start of the third year.

Fourth Year - Autumn Semester									
Course Code	Course Title	Contact Hours Per Week			Credits	ETE Duration (Hours)	Weightage		
		L	T	P			CW	MTE	ETE
UE	University Elective - II	3	0	0	3	3	20		80
	Program Elective-2	3	0	0	3	3	10	40	50
	Program Elective-3	3	0	0	3	3	10	40	50
EC 23.451	Capstone Project-1	0	0	4	2			50	50
EC 23.453	Summer Internship Project-	0	0	0	2			100	
	Total				13				

Fourth Year -Spring Semester									
Course	Course Title	Contact Hours Per Week			Credits	ETE Duration (Hours)	Weightage		
		L	T	P			CW	MTE	ETE
	Program Elective-4	3	0	0	3	3	10	40	50
	Program Elective-5	3	0	0	3	3	10	40	50
EC 23.452	Capstone Project-2			12	6			50	50
	Total				12				

****Summer Internship Project-2 will be carried out during the summer vacation, specifically between the end of the third year and the start of the fourth year.

List of Program Elective Options

Programme Elective-1	
	MOOC
Programme Elective-2	
EC 23.403	Fiber Optic Communication
EC 23.405	System Design using HDL
EC 23.417	VLSI Systems and Subsystems
Programme Elective-3	
EC 23.407	Cellular and Satellite Communication
EC 23.409	Embedded and Real Time Operating Systems
EC 23.419	VLSI Fabrication Technology
Programme Elective-4	
EC 23.400	Wireless Networks
EC 23.402	Nano Electronic Devices
EC 23.418	VLSI Physical Design and Design Automation
Programme Elective-5	
EC 23.406	Digital Image Processing
CS 23.493	Foundations and Applications of IoT
EC 23.420	Low power VLSI Technology