SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

(Department of Electronics and Communication Engineering)

COURSE STRUCTURE

2 – Years M. Tech. ECE

(Specialization: VLSI Design)

GAUTAM BUDDHA UNIVERSITY, GREATER NOIDA

2026-28

Semester I

S.No	Course Code	Course Title	L	T	P	Credit
1	EC501	Probability Theory and Random Process	3	0	0	3
2	EC503	Mathematical Foundations for Machine Learning	3	0	0	3
3	EC513	CMOS VLSI Design	3	0	0	3
4	EC515	Modeling of Semiconductor Devices	3	0	0	3
5	EC5xx	Elective I	3	0	0	3
6	EC581	CMOS VLSI Design Lab	0	0	4	2
7	EC583	Modeling of Semiconductor Devices Lab	0	0	4	2
8	EC571	Technical Presentation	0	0	4	2
Total			**15**	**0**	**12**	**21**

Semester II

S.No	Course Code	Course Title	L	T	P	Credit
1	EC514	Digital IC Design	3	0	0	3
2	EC516	Embedded System Design	3	0	0	3
3	EC518	Memory Design and Testing	3	0	0	3
4	EC5xx	Elective II	3	0	0	3
5	EC5xx	Elective III	3	0	0	3
6	EC580	Digital IC Design Lab	0	0	2	1
7	EC582	Embedded System Design Lab	0	0	2	1
8	EC572	Minor Project	0	0	8	4
Total			**15**	**0**	**12**	**21**

Semester III

S.No	Course Code	Course Title	L	T	P	Credit
1	EC6xx	Elective IV	3	0	0	3
2	EC673	Research Techniques in ICT	3	0	0	3
3	EC675	Dissertation Part I	0	0	24	12
Total			**6**	**0**	**24**	**18**

Semester IV						
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**
1	EC676	Dissertation Part II	0	0	40	20
Total			**0**	**0**	**40**	**20**

ELECTIVE I						
Specialization Basket	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**
Wireless Communication Networks	EC531	Emerging Wireless Technologies	3	0	0	3
	EC533	Reliability Engineering	3	0	0	3
	EC535	Computational Methods	3	0	0	3
VLSI Design	EC537	CMOS Analog IC Design	3	0	0	3
	EC539	IC Fabrication	3	0	0	3
	EC541	Mixed Signal VLSI Design	3	0	0	3
	EC543	VLSI Design Automation	3	0	0	3
	EC545	Nano-Technology	3	0	0	3
IoT and Robotics	EC547	Data Analytics	3	0	0	3
	EC549	Embedded Systems and RTOS	3	0	0	3
	EC551	Fundamentals of Robotics	3	0	0	3

ELECTIVE II & III						
Specialization Basket	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**
Wireless Communication Networks	EC532	Optimization Theory and Techniques	3	0	0	3
	EC534	Advanced Topics in 6G Communication Systems	3	0	0	3
	EC536	Internet of Things (IoT), Edge Computing and Security	3	0	0	3
	EC538	Adaptive Signal Processing	3	0	0	3
	EC540	Reliability Engineering	3	0	0	3
	EC542	Computational Methods	3	0	0	3
	EC544	Image and Video Processing	3	0	0	3
	EC546	VLSI Design for Communication Systems	3	0	0	3
VLSI Design	EC548	Low Power VLSI Design	3	0	0	3
	EC550	CAD for VLSI	3	0	0	3
	EC552	Power Semiconductor Devices and Technology	3	0	0	3
IoT and Robotics	EC554	Applied Numerical Analysis	3	0	0	3
	EC556	Drives and Automation	3	0	0	3

ELECTIVE IV						
Specialization Basket	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**
Wireless Communication Networks	EC601	Advanced Wireless Sensor Networks	3	0	0	3
	EC603	Statistical Models	3	0	0	3
	EC605	Advanced Techniques in Operation Research	3	0	0	3
VLSI Design	EC607	Neuromorphic AI Chip Design	3	0	0	3
	EC609	Hardware Description Languages and FPGA based Designs	3	0	0	3
IoT and Robotics	EC611	Marine Robotics	3	0	0	3
	EC613	Industrial Internet of Things	3	0	0	3