

BTech in Electronics & Communication Engineering
New Curriculum Semester-wise Schema

First Semester		Second Semester	
Course Name	Cr	Course Name	Cr
Engineering Chemistry & Lab	3	Engineering Physics & Lab	4
Calculus & Matrices	3	Computational Mathematics	3
Basic Electrical Engineering	3	Environmental Studies	2
Basic Electronics	3	Engineering Materials & Mechanics	4
Biology for Engineers	2	MATLAB for Engineers	2
Computer Programming & Lab	4	Creativity & Innovation Lab	2
IoT Fab Lab	1	Engineering Graphics	1
Constitution of India	1	Technical Writing Clinic 1	1
		Universal Human Values	1
First Semester Credits	20	Second Semester Credits	20

Third Semester		Fourth Semester	
Course Name	Cr	Course Name	Cr
Statistics & Probability	3	Management	3
Network, Signals & Systems	4	Electromagnetics & Microwave	4
Analog Circuits & Systems	4	Computer Architecture	4
Digital System Design	4	Flexi Core 1	4
Economics	3	Program Elective 1	3
University Elective 1	3	University Elective 2	3
Analog Circuits & Systems Lab	1	Microwave & RF Lab	1
Digital System Design Lab	1	Computer System Design Lab	1
Self-Study or Project	1	Project Based Learning 1	1
Third Semester Credits	24	Fourth Semester Credits	24

Fifth Semester		Sixth Semester	
Course Name	Cr	Course Name	Cr
MOS VLSI Design	4	Optical Communication	4
Modern Communication System	4	Flexi Core 3	4
Flexi Core 2	4	Program Elective 4	3
Program Elective 2	3	Program Elective 5	3
Program Elective 3	3	University Elective 4	3
University Elective 3	3	Technical Writing Clinic 2	1
VLSI & Embedded system Lab	1	Optical communication Lab	1
Communication System Lab	1	Advanced System Design Lab	1
Project Based Learning 2	1	Research, Innovation & Entrepreneurship	3
Fifth Semester Credits	24	Fourth Semester Credits	23

Seventh Semester		Eighth Semester	
Course Name	Cr	Course Name	Cr
University Elective 5	3	Major Project	12
Program Elective 6	3		
Program Elective 7	3		
Program Elec 8 / Univ Elect 6	3		
Internship (Industry/ Research)	1		
Fifth Semester Credits	13	Eighth Semester Credits	12

Proposed List of Courses offered by the Department of Electronics and Communication Engineering for B.Tech. Electronics Engineering (VLSI Design and Technology)

1. Proposed Flexi- Courses

1. FC1: Data structures and Algorithms
2. FC1: Control theory
3. FC2: Digital Signal Processing
4. FC2: Embedded Systems
5. FC3: VLSI Testing & verification
6. FC3: Antenna

2. Proposed Department Program Electives

(PE1)

1. Semiconductor device Fabrication
2. Microcontroller & applications
3. Robot Manipulator & Control
4. Industrial Electronics

(PE2)

1. FPGA Architecture
2. Biometrics
3. Information Theory & Coding
4. Neural network & Deep learning

(PE3)

1. Modern Embedded system programming
2. Computer Networks
3. OOPs using C++
4. MEMS sensors & Technology

(PE4)

1. Analog VLSI design
2. Wireless communication
3. Free Space Optical Communication
4. Energy Sources & Technology

(PE5)

1. VLSI Design with Verilog HDL

2. Telecommunication & broadband networks
3. Embedded system based design
4. Optical Sensors
5. Radar & satellite communication

(PE6)

1. VLSI physical design
2. Mobile communication
3. Advanced embedded system
4. Nanophotonics
5. Modern antenna technology

(PE7)

1. Low power VLSI design
2. MIMO Wireless Communication Fundamentals
3. ARM Embedded System programming
4. Photonics & optoelectronics
5. Defense Information System & Electronic Warfare

(PE8)

1. System Verilog for design & verification
2. Wireless Sensors & Adhoc Networks
3. Embedded MATLAB programming
4. Optical networks
5. Microwave Devices

Focus Areas offered by Department of Electronics and Communications

Focus Area 1: VLSI Design

1. *VLSI Design with Verilog HDL*
2. *VLSI physical design*
3. *Low power VLSI design*
4. *System Verilog for design & verification*

Focus Area 2: Communication Systems & Networks

1. *Telecommunication & broadband networks*
2. *Mobile communication*
3. *MIMO Wireless Communication Fundamentals*
4. *Wireless Sensors & Adhoc Networks*

Focus Area 3: Embedded Systems

1. *Embedded system based design*
2. *Advanced embedded system*
3. *ARM Embedded System programming*
4. *Embedded MATLAB programming*

Focus Area 4: Photonics & Optical Communication

1. *Optical Sensors*
2. *Nanophotonics*
3. *Photonics & Optoelectronics*
4. *Optical networks*

Focus Area 5: Microwave & RF Systems

1. *Radar & satellite communication*
2. *Modern antenna technology*
3. *Defense Information System & Electronic Warfare*
4. *Microwave devices*

Proposed Department University Electives. These courses are only open to students outside of FoE

1. *Introduction to Communication Systems*
2. *Sensors*
3. *Mobile cellular communication*
4. *Introduction to game theory*

5. *Excel fundamentals for data analysis*
6. *Stress free living(in collaboration with MUJ YES+ Chapter, faculty from Art of living)*
7. *Shrimad Bhagwad Gita (in collaboration with Abhigya Club & faculty from Akshaypatra foundation)*
8. *Mobility management-land, water and sea*
9. *Engineering in medicine & biology*
10. *Electrical Power & energy for societal development*
11. *Introduction to Word Processing*
12. *Electronics for Beginners*
13. *Smart Systems Design and Implementation*