Communication and Computer Engineering

4year B.Tech. Degree Program

About the B.Tech. CCE Program

Last one decade or so Digitization is growing exponentially and is all pervading. Most of the operations related to Governance, Banking Sector, Corporate Sector, Education Sector etc. are getting digitized.

 Digital communication in particular, is growing much faster in last couple of years. It has created requirements of new class of Engineers who possess Design, Operations, Maintenance, Marketing, Testing and other associated Skills and knowledge pertaining to latest Communication and Network Technology in terms of both Hardware as well as Software aspects. New class of Engineers have to not only acquire their technical knowledge in Digital Control, Digital Signal Processing, System on Chip, Communication Protocols, Internet of Things (IOT), Sensor Networks, ADC/DAC, Micro-controller, Broad-band and Wireless Communication Architecture, but also in Cloud and Edge Computing, Information Encryption and Decryption, Data Science, AI & Machine Intelligence etc..

Objective: After completion of this program, the students will be able to design and implement Telecommunication Technology in Networking, Integrated diverse systems in Business world, deal with ICT Management and Architecture, Create/manage/deploy Database and Networking.

In order to meet the requirements as above, the graduates of Computer and Communication Engineering are required to be trained in such a way that they are able to accomplish/perform following tasks;

*Design and develop Communication Network Architecture for various Business Environment

*Design and develop secured Communication Network.

*Design, implement prototype and test digital systems which can be deployed in communication system, embedded with power of handling distributed controls and dynamic learning mechanisms and Cloud/Edge computing.

*Develop IOT and sensors-based systems for local as well as global applications.

The Program offers specializations in the following areas:

1. Wireless and Broadband Communication Technologies
2. Robotics and IOT
3. Data Science
4. Cyber Security
5. Artificial Intelligence
6. Cloud Computing

Eligibility criterion to get admission:

Minimum eligibility criterion for admission is Class 12th from CBSE or any Indian school education board, or any other equivalent qualification specified by AIU (Association of Indian Universities) with Physics , Chemistry and Mathematics as Compulsory subjects. The applicants undergo an interaction with two faculty members to assess their suitability for the program.

B.Tech. CCE Program Structure

==**Curriculum - Course category-wise credit distribution**==

Courses	Credits
Basic Sciences	20
Engineering Sciences	09
Professional compulsory	80
Industry Practice	20
Professional Electives	24
Open Electives	08
Humanities and Social Sciences/Activity Oriented Courses	18
Total Credits	**179**

Percentage Distribution of Credits

- Professional Compulsory
- Industry Practice
- Basic Sciences
- Engineering Sciences
- Professional Electives
- Open Electives
- Humanities and Social Sciences/Activity Oriented Courses
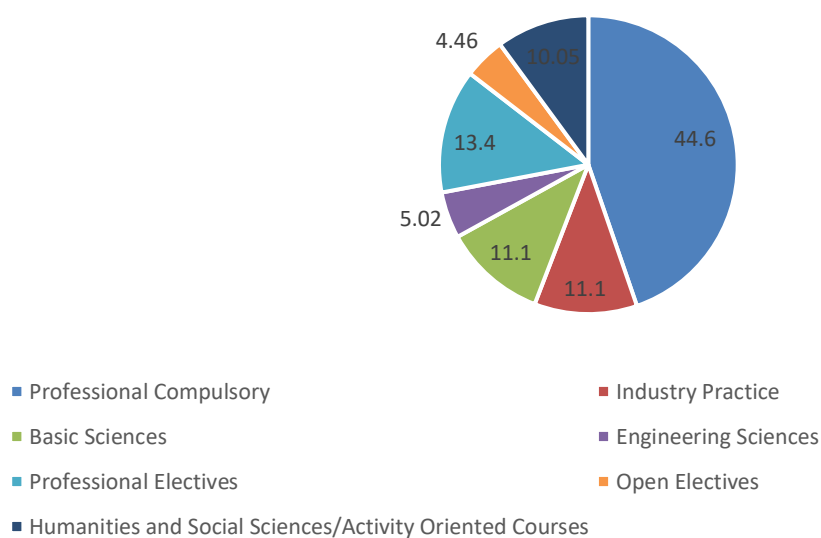
B.Tech. CCE Program Structure

Semester	Category	Course Name	Credits	
			Course	Semester
Sem-1	BS (C)	Calculus	4	
	BS (C)	Science I	4	
	PC (C)	Fundamentals of Electronics	4	
	PC (C)	Fundamentals of Computer Programming	4	22
	ES (C)	Engineering Graphics/ Workshop Practice	3	
	HSS (C)	Communication Skills/HSSM-I	3	
	HSS (A)	Community Connect	1	
Sem-2	BS (C)	Algebra & Differential Equation	4	
	BS (C)	Science II	4	
	ES (C)	Environmental Science	3	
	BS (C)	Data Structures	4	21
	ES (C)	Engineering Graphics/Workshop Practice	3	
	HSS (C)	Communication Skills/HSSM-I	3	
	HSS (A)	Community Connect	1	
Sem-3	BS (C)	Probability & Random Process	4	
	PC (C)	Digital Logic and Circuit	4	
	PC (C)	Analog Electronics and Integrated Ckts.	4	
	PC (C)	Object Oriented Programming	4	23
	PC (C)	Signal Systems*	4	
	HSS (C)	HSSM-II	3	
Sem-4	PC (C)	Design and Analysis of Algorithm	4	
	PC (C)	Digital Signal Processing**	4	
	PC (C)	Computer Arch. & Organization	4	
	PC (C)	Analog and Digital Communications	4	23
	PC (C)	Data Based Management Systems	4	
	HSS (C)	HSSM-III	3	

---

[1] Humanities and Social Sciences

Sem-5		Digital and Distributed Control Theory***	4	23
	PC (C)	Antenna and Microwave Propagation	4	
	PC (C)	Optoelectronics & Optical Communication	4	
	PC (C)	Microprocessor & Microcontroller	4	
	PC (C)	Communication Networks	4	
	HSS (C)	HSSM-IV	3	
Sem-6	PC (C)	Coding and Information Theory	4	23
	PE (C)	Professional Elective – I	4	
	PE (C)	Professional Elective – II	4	
		Operating Systems	4	
	PC (C)	R&D Project	4	
	HSS (C)	HSSM-V	3	
Sem-7	PE (C)	Professional Elective – III	4	24
	PE (C)	Professional Elective – IV	4	
	PE (C)	Professional Elective – V	4	
	OE (C)	Open Elective – II	4	
	OE (C)	Open Elective – III	4	
	PE (C)	Capstone Project – I	4	
Sem-8	IL (C)	Industry Practice	20	20
Total Credits in B.Tech. CCE Program			**179**	

@ Student can choose an Open Elective from any other Area / Program e.g. B.Tech. CSE

List of courses in Specialization Areas

Specialisation	Course Name
Cyber Security	As offered by CSE Area
Data Science	As offered by CSE Area
Artificial Intelligence	As offered by CSE Area
Cloud Computing	As offered by CSE Area
Wireless and Broadband Communication Technologies	List of courses under preparation
Robotics and IOT	1. Industrial Control, Robotics and Automation 2. Real Time Operating Systems 3. IOT and Sensor Networks 4. Kinematics of Robots 5. Architecture, Protocols and Design Principles of IOT