

## The Institute

National Institute of Technical Teachers Training and Research, Chandigarh, an ISO 9001- 2008 certified institute, is one of the four national institutes established by the Government of India in 1967 for the growth and development of technical education in the country. The institute had the collaboration with Royal Netherlands Government for a period of seven years in the initial stage. Presently, the outreach of the programmes and activities of the institute covers the entire gamut of technical education. It is now reckoned as a resource institute for technical education providing services to its clientele covering faculty/staff of technical institutions, officials of directorates/boards of technical education, central and state government departments, industry, students from technical institutes, community and trainees from overseas. The Institute is an autonomous organization registered under the Societies Registration Act 1860. It is managed by a Board of Governors. Director is the executive head of the institute. The present Director of the Institute is Professor (Dr.) Bhola Ram Gurjar.

The Institute is situated in a well-developed campus in Sector 26, Chandigarh covering an area of over 16.94 acres. The Institute also has residential campuses in Sector 26, 29 and 42. The institute is about 5 Km from Chandigarh Railway Station, 5 and 10 Km from Inter-State Bus Terminus in Sector 17 and Sector 43 respectively. Chandigarh is also connected by Air with major cities of the Country.

### Programmes and Activities

The institute undertakes the following spectrum of activities:

- ❖ Education and Training Programmes
- ❖ Curriculum Development
- ❖ Instructional Material Development
- ❖ Research and Development
- ❖ Extension Services
- ❖ Consultancy in Technical Education and Technology areas

Keeping in tune with the various emerging needs of the country, the institute presently extends its services in the following areas as well:

- i) Media Development including information resources, their acquisition, storage and retrieval
- ii) Entrepreneurship Development
- iii) Industry Institute Interaction
- iv) Continuing Education for working engineers/technicians
- v) Transfer of Appropriate Technology to rural areas
- vi) Integrating Persons with Disabilities with the mainstream of Technical and Vocational Education

The institute also offers consultancy services to international, national and state level organizations in the above areas.

## About the Department

The department of Electronics & Communication has progressed steadfastly since its establishment to its present status of being reckoned as a Leader in Electronics & Communication with the sanctioned faculty strength of one Professor, three Associate Professors and two Assistant Professors. The department is actively involved in conducting Master of Engineering in Electronics & Communication Engineering courses in Regular mode for fresh graduate engineering students and Modular mode for the sponsored teachers of polytechnics, engineering colleges, officials of directorate of technical education and Industry professionals at regional and national level in the country. The department also conducted ME in Artificial Intelligence in 2020. The department offers Ph.D. Program in the area of Electronics & Communication Engineering. The department conducts need-based short term courses in the emerging areas like Advanced VLSI Design, Digital Signal Processing, Image Processing, Wireless and Mobile Communication, Wireless Sensor Networks, Optical Fiber Communication, Antenna Design, Digital and Data Communication, Embedded and Digital System Design, Artificial Neural Networks, Fuzzy Logic etc. to update the knowledge and skill of faculty and technical staff of polytechnics and engineering colleges. The department is also involved in conducting Induction Training Programs through ICT in the Northern Region.

### Major Activities of the Department

The major activities of the department are grouped as:

#### 1. Staff Development Programs

##### (i) Long Term Programs

The department offers industry-oriented and practice-based two-year Masters Degree Program affiliated to Panjab University, Chandigarh in Electronics & Communication Engineering duly approved by AICTE as follows:

- Master of Engineering Program (Regular) in ECE with intake of 21 students per year
- Master of Engineering Program (Modular) in ECE with intake of 23 students per year
- Master of Engineering Program (Regular) in Artificial Intelligence (AI) with intake of 23 students per year
- Ph.D under QIP Scheme with 3 candidates / year.
- Ph.D registration under Panjab University, Chandigarh & PTU, Jalandhar (Pb).

Recognizing the need to provide professionally trained teachers and administrators for the technical education system and also to offer professional development opportunities to working technical and training personnel in the Industry, NITTTR, Chandigarh started Master of Engineering in Electronics & Communication Engineering. The focus of M.E. in Electronics & Communication Engineering is to enable the students to progress in collaboration with industries and other technical institutions like CSIO, CDAC, PEC etc. for Research and Development activities.

## Programme Outcomes

POs	Statement
PO1	An ability to independently carry out research /investigation and development work to solve practical problems.
PO2	An ability to write and present a substantial technical report/document.
PO3	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
PO4	An ability to integrate the modern tools and techniques for project execution and management.
PO5	Demonstrate professional ethics, work culture and lifelong learning for successful career in teaching, research and industry.

### (ii) Short Term Training Programmes

The department offers need-based and customized Short Term Staff Development Programs of one or two week duration at regional and national level for the faculty and technical staff of polytechnics and engineering colleges in the new emerging areas to fulfill the objectives and mission of the Institute. The areas offered for short term courses are – VLSI Design, Digital Signal Processing, Wireless & Mobile Communication, Digital & Data Communication, Embedded & Digital System Design, Artificial Neural Networks & Fuzzy Logic Optical Fiber Communication, Image Processing, Wireless Sensor Networks etc.

## 2. Curriculum Development

The faculty works towards revising curricula for ME in Electronics and Communication Engineering as well as revising curricula for polytechnic Colleges to incorporate latest developments in fast changing field of electronics.

## 3. Instructional Material Development (Print & Non-Print)

Faculty has produced many video films which are uploaded on Institute Web portal NCTEL. Besides these, the faculty continuously improve lab manuals and presentations of their own subjects.

## 4. Research & Development

Research & Development activities are undertaken in the specialized areas such as:

- Wireless & Mobile Communication
- Advanced Digital Communication
- Optical Fiber Communication
- Wireless Sensor Networks
- VLSI Design
- Advanced Digital Signal Processing
- Embedded Systems
- Digital System Design
- Antenna Engineering
- Artificial Intelligence
- Image Processing

## **5. Coordination Activities**






The department has the following well-established laboratories with Internet Connectivity equipped with equipment & software to provide lab facilities to the students of Masters' Degree Regular & Modular Programs in Electronics & Communication Engineering and Artificial Intelligence and for smooth running of Training Programs along with effective infrastructural facilities which include Library and Smart class-room in the department.

### **Laboratories**




- VLSI Design Laboratory
- Communication Engg. Laboratory
- Embedded System Design Laboratory
- Antenna Design Laboratory
- Artificial Intelligence Laboratory
- Digital Signal and Image Processing Laboratory

## Faculty and Staff

The department presently has a faculty strength of 09 with 01 Professor, 01 Associate Professor and 02 Assistant Professors along with 01 Associate Professor on lien and 04 Joint Faculty. The strength of technical and other supporting staff is 03 while 01 contractual staff member also exists. Following is the faculty profile:

Sr. No.	Name of the Faculty	Designation/ Qualifications	Specialization	Photograph
1.	Dr. Amod Kumar	Professor Ph.D. (Engg.)	Digital Signal Processing Image Processing Soft Computing	
2.	Dr. Balwinder Singh Dhaliwal	Associate Professor Ph.D. (Engg.)	Antenna (Fractal, MIMO), Digital Signal Processing, Soft Computing.	
3.	Dr. Kanika Sharma	Assistant Professor Ph.D. (Engg.)	Embedded System Design, Digital System Design, Wireless Sensor Network	
4.	Dr. Garima Saini	Assistant Professor Ph.D. (Engg.)	Digital Communication, Wireless & Mobile Comm., Antenna Design	
<b>Faculty on Lien</b>				
5.	Dr. Balwinder Raj	Associate Professor Ph.D. (VLSI)	VLSI Design, Nanoelectronic Devices and Circuits, Embedded System Design, FPGA Based Design	

Supporting Staff is as follows:

Sr. No.	Name	Designation	Qualification	Photograph
1.	Sh. Mandeep Saini	Electronics Engineer	B. Tech. (ECE)	
2.	Sh. Ashok Kumar	Senior Technical Assistant	B.Tech. (ECE)	
3.	Sh. Kuldeep Singh	Sr. Secretariat Assistant (SSA)	MCA	
4.	Sh. Chandan (Half Day)	Technician	Diploma (ECE)	