

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.) S.S. Pattnaik.

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 since its establishment progressed steadfastly 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 Post-Graduate Course on Regular & Modular modes Industry Oriented & Practice Based Master of Engineering in Electronics & Communication Engineering 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 has also started ME in Artificial Intelligence from this year onwards i.e. 2020. The department also 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, Wireless & Mobile Communication, Digital & Data Communication, Embedded & Digital System Design, Artificial Neural Networks & Fuzzy Logic, Optical Fiber Communication and Image Processing , Wireless Sensor Networking, Antennas 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 Masters Degree Program of 02 years affiliated with 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 (Regular) in Artificial Intelligence (AI) with intake of 23 students per year
- Master of Engineering Program (Modular) in ECE with intake of 23 students per year
- Ph.D under QIP (Poly) scheme with 3 candidates / year
- Ph.D under QIP (Engg.) Scheme with 3 candidates / year to be started from 2021-2022.
- Ph.D registration under Panjab University, Chandigarh & PTU, Jalandhar (Pb) affiliation.
- PG Diploma in Embedded Systems & IoT

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 offering 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 EDUCATIONAL OBJECTIVES

The Programme Educational Objectives (PEOs) of M.E. in Electronics and Communication Engineering are:

PEO1	To develop technical knowledge and skills in the area of Electronics and Communication Engineering at post-graduate level.
PEO2	To develop ability to undertake research and development in the area of Electronics and Communication Engineering.
PEO3	To develop generic skills such as life-long learning, creativity, problem-solving, communication, teamwork, leadership, as well as professional ethics and values.

Programme Outcomes (POs) are:

- a. Ability to understand, apply, analyze and synthesize existing and new knowledge related to Electronics and Communication Engineering.
- b. Ability to identify, formulate and solve engineering problems.
- c. Ability to design a system, process, component etc. as per specifications.
- d. Ability to use modern engineering tools, including software related to Electronics and Communication Engineering.
- e. Ability to undertake collaborative research in multi-disciplinary areas.
- f. Ability to understand professional and research responsibilities, contemporary issues as well as the impact of engineering solutions on the society.
- g. Ability to communicate effectively.
- h. Ability to continuously update knowledge and skills as per changes in the discipline, technology and world of work.
- i. Ability to apply the principles of project planning and management, Total Quality Management and Technology Management for managing projects in Electronics and Communication Engineering and multi- disciplinary areas.

(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 activity works towards revising curricula for ME in Electronics and Communication Engineering as well as revising curricula for polytechnic Colleges.

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 Laboratory
- Communication Laboratory
- Embedded Laboratory
- Antenna Design Laboratory
- Artificial Intelligence Laboratory
- Signal and Image Processing Laboratory
- ESC - PCB Laboratory



FACULTY AND STAFF

The department presently has a faculty strength of 08 with 02 Professors, 02 Associate Professors and 02 Assistant Professors alongwith 02 Joint Faculty. The strength of technical and other supporting staff is 05 including 02 contractual staff.

FACULTY PROFILE

Sr. No.	Name of the Faculty	Designation/Qualifications	Specialization	Photograph
1.	Dr. Sandeep Singh Gill	Professor & Head Ph.D. (Eltx. & Comm. Engg.)	VLSI Design, Soft Computing Techniques Engineering	
2.	Dr. Amod Kumar	Professor Ph.D. (Electronics & Comm. Engg.)	Digital Signal Processing, Digital Image Processing, Soft Computing Biomedical Engineering	
3.	Dr. Balwinder Singh Dhaliwal	Associate Professor Ph.D. (Electronics & Comm. Engg.)	Antenna (Fractal, MIMO), ANN, Digital Signal Processing, Soft Computing.	
4.	Dr. Balwinder Raj	Associate Professor Ph.D. (VLSI)	Nanoelectronic Devices and Circuits, Nanotechnology and energy based devices, VLSI Design, VLSI & Embedded System Design, Modeling and Simulation, FPGA Based Design, Artificial Intelligence and Its Applications.	
5.	Dr. Kanika Sharma	Assistant Professor Ph.D. (Engg.)	Embedded System Design, Digital System Design, Wireless Sensor Network	
6.	Dr. Garima Saini	Assistant Professor Ph.D. (Engg.)	Advanced Digital Communication; Wireless & Mobile Communication, Antenna	
7.	Dr. Rajesh Mehra (Joint Faculty in ECE)	Professor & Head, CDC Ph.D. (Engg.)	VLSI Design; Advanced Digital Signal Processing, and Embedded Design	
8.	Dr. Meenakshi Sood (Joint Faculty in ECE)	Associate Professor, CDC Ph.D.(ECE)	Curriculum Development, Digital Signal Processing & Image Processing, Machine Learning, Nature Inspired Algorithms, Soft Computing Techniques, Women Empowerment, Energy harvesting and storage, Artificial Intelligence and Its Applications, Biomedical engineering, Antenna(Plana, Metamaterial, Fractal).	

LIST OF SUPPORTING STAFF

Sr. No.	Name	Designation	Qualification	
1.	Sh. Rampal	Sr. Technical Assistant (STA)	ITI (Electrical)	
2.	Sh. Ashok	Technician	Diploma in Electronics and Communication Engineering B.Tech (Electronics and Telecommunication)	
3.	Sh. Sudhir Chopra	Sr. Secretariat Assistant (SSA)	BA	