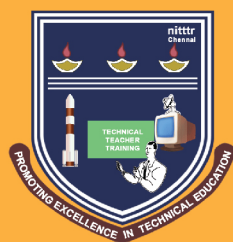


# M.E. ELECTRONICS AND COMMUNICATION ENGINEERING (Industry Integrated)

(Affiliated to Anna University, Chennai)

PROGRAM BROCHURE



**Offered by**

**DEPARTMENT OF ELECTRICAL, ELECTRONICS AND COMMUNICATION ENGINEERING**  
NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH

(Ministry of Education, Govt. of India)

Taramani, Chennai – 600 113, India

[www.nitttrc.ac.in](http://www.nitttrc.ac.in)



# About NITTTR, CHENNAI

National Institute of Technical Teachers Training and Research (NITTTR), Chennai was established in 1964 by the Government of India as a key catalyst institution for ensuring quality in technical education in South India comprising the States of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana and Union Territory of Pondicherry. This Institute being a Resource Institute offers educational services in curriculum/material/ institutional Development, Instructional Methods, Media, Examination Reforms, Continuing Education, Distance Learning, Training and Development, Educational Psychology, Educational Management and Research. The Institute strives continuously and vigorously to achieve greater heights of excellence by actively collaborating with National and International agencies on projects and programmes aimed at quality improvement of technical education systems.





## DEPARTMENT OF ELECTRICAL, ELECTRONICS AND COMMUNICATION ENGINEERING

Established in the year 1964, Electrical, Electronics & Communication Engineering (EE&CE) Department is organizing about 30 programmes throughout the year in 20 different areas for teachers of Polytechnic & Engineering Colleges from India. The Department is conducting Overseas Training Programmes every year for two months duration to train the International faculty members in the emerging electronics areas. Training programmes organized in the department are practically oriented to enable the participants to gain confidence in handling the subjects. The training will be given by the eminent Professors, Experts and related Software Professionals from various Universities, IIT's, NITTTRs and Industries. Participants will be getting industrial exposure by arranging industrial visits and training in the industrial environment. EE&CE Department has offered customized training programmes for Industries like Andrew Yule, Visteon and has also trained PWD officials. As per NITTTRs mandate, the Department faculty members are involved in revising the curriculum of Polytechnic, University/Engineering college programme from time to time. The Department is organizing many workshops / seminars / conferences in emerging areas in the field of Electrical, Electronics and Communication. The Department has conducted International/National Programmes/ workshops/ seminars/ webinar in collaboration with CPSC Manila and UNSECO. The Department also offers consultancy in setting up of centres of excellence and other project works. Department has purchased the latest equipment to train the faculties in the current trends.



### VISION

**Towards Excellence in Promoting need based Training Programmes and Research in Electrical, Electronics and Communication Engineering**





# MISSION

- To design and develop need based training programs for the faculty of Polytechnic & Engineering Colleges and working Professionals of Industry and Government Organizations.
- To offer International Training Programs on emerging areas of Electrical, Electronics and Communication Engineering for the Teachers and working professionals of various Countries under ITEC scheme Of Ministry of External Affairs, Government of India.
- To develop new innovative short-term and long-term programs by collaborating with Universities and Institutes of Higher Learning for developing Electrical, Electronics and Communication Engineering Teachers to meet the requirements of Engineering Educational Institutions.
- To provide support services to the Government of India schemes related to the technical and vocational education system and as entrusted by MHRD, Government of India, from time to time.
- To offer research, testing services for Industries and Govt. Organizations.
- To establish partnership with Industries for offering Skill based Training Programs for Industrial Personnel and Industrial Training for the faculty of Polytechnic and Engineering Colleges.
- To design new instructional systems and strategies for the production of multimedia learning resources and transfer through the latest technologies including broadcasting and webcasting/ multicasting. To offer faculty exchange programs by linking with various Universities of India and abroad.



## AREAS OF SHORT - TERM COURSES CONDUCTED BY THE DEPARTMENT

- |  |   |
|--|---|
| ➤ PLC and SCADA  | ➤ Verilog Programming and Implementation using FPGA |
| ➤ Industrial Automation                                      | ➤ Virtual Instrumentation                           |
| ➤ Digital and Mobile Communication                           | ➤ VHDL Programming and Implementation using FPGA    |
| ➤ 8051 Micro Controller and its applications                 | ➤ Wireless Communication                            |
| ➤ PIC 16F877 Microcontroller and its applications            | ➤ Special Electrical Machines and Control           |
| ➤ Data Communication and Networking                          | ➤ Arduino and Raspberry Pi Programming              |
| ➤ MATLAB Programming for Simulation and Design               | ➤ Electrical Systems for Wind and Solar             |
| ➤ Digital Design using Verilog and implementation using FPGA | ➤ Sensor Applications using MyRIO                   |
| ➤ Graphical System Design using LabVIEW                      | ➤ Biomedical Electronics and IoT in Healthcare      |
| ➤ Digital Signal Processing                                  | ➤ Electrical CAD                                    |
| ➤ Advanced Communication Systems                             | ➤ Internet of Things(IoT)                           |
| ➤ ARM Controller LPC2148                                     | ➤ Electric Vehicle Engineering                      |
| ➤ Power Electronics  | ➤ Circuit Simulation and PCB Design                 |



# M.E. ELECTRONICS AND COMMUNICATION ENGINEERING (INDUSTRY INTEGRATED)

M.E. in Electronics and Communication Engineering (Industry Integrated) is a unique course and inclined towards Industrial needs. In this programme, the latest technology such as Internet of Things, Industry 4.0, Cyber Physical System, Industrial Automation, Embedded System on Chip

design, Machine learning, Deep Learning, Advanced Communication Systems, E-vehicle Technologies and Telemedicine have been focused. Also majority of the courses offered under these programmes will be focusing more on practical applications with Industry relevant case studies. This programme is not alone focusing on the emerging areas, but also develop problem analysis and design skills of the

students in the domain. Industry experts also will be involved in handling classes and students will be able to interact with different industry experts. The uniqueness of this programme is to encourage the students to undergo the Industrial problem based projects. Hence the students who are undertaking these programmes will gain knowledge in solving Industry based Problems and develop expertise in research and development to cater to needs of the society.

The program will have Core courses, Elective courses and Project works. The project may also have seminar, practical/Industrial training summer project.

## CORE COURSES

- ▶ Applied Mathematics for Electronics Engineers
- ▶ Advanced Digital Signal Processing
- ▶ Embedded Controllers
- ▶ Industrial Automation and Control
- ▶ Network Security Technologies
- ▶ Virtual Instrumentation
- ▶ ASIC and FPGA
- ▶ Wireless Communication and Networking
- ▶ Cyber Physical Systems
- ▶ Wireless Adhoc and Sensor Networks
- ▶ Embedded Systems Programming Laboratory
- ▶ IoT and Cyber Physical Systems Laboratory
- ▶ Research Methodology and Seminar
- ▶ Project Work Phase I & II (Industry supported)



# ELECTIVE COURSES

- Internet of Things
- Soft Computing Techniques
- Optical Networks
- Computer Vision
- Industry4.0
- Broadband Access Technologies
- Automotive Electronics
- Smart Antennas
- Electromagnetic Interference and Compatibility
- System on Chip
- Software Defined Networks
- Machine Learning
- Real Time Systems
- Electronics for Solar Power
- Healthcare Technologies and IoMT
- Robotics and Automation
- Cognitive radio communications
- Micro and Nano Electro mechanical Systems
- Quantum computing
- Deep Learning Techniques
- Cloud computing Technologies
- Renewable Energy Resources
- E –Vehicle Technologies
- Intelligent Transportation Systems
- Intellectual property and rights

## CREDITS

The minimum prescribed credits required for the award of the degree shall be within the limits : 65 to 75 (As per Anna University, Chennai)

## UNIVERSITY EXAMINATIONS

There shall be an End- Semester Examination of 3 hours duration in each course will be conducted by Anna University, Chennai.



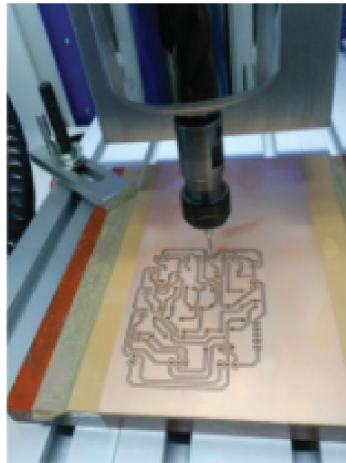
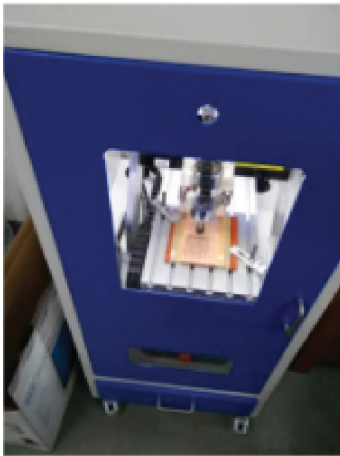


# Facilities in the Department

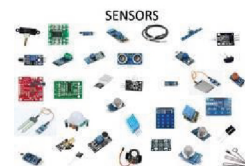
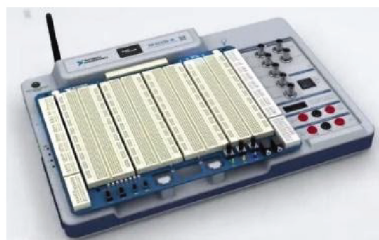
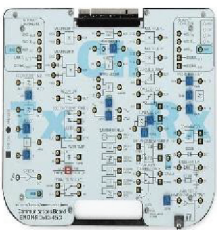
## INDUSTRIAL INSTRUMENTATION & PNEUMATICS LAB



## ELECTRONICS DESIGN AND PCB DESIGN LAB



## INTERNET OF THINGS (IoT) & CYBER PHYSICAL SYSTEMS LAB

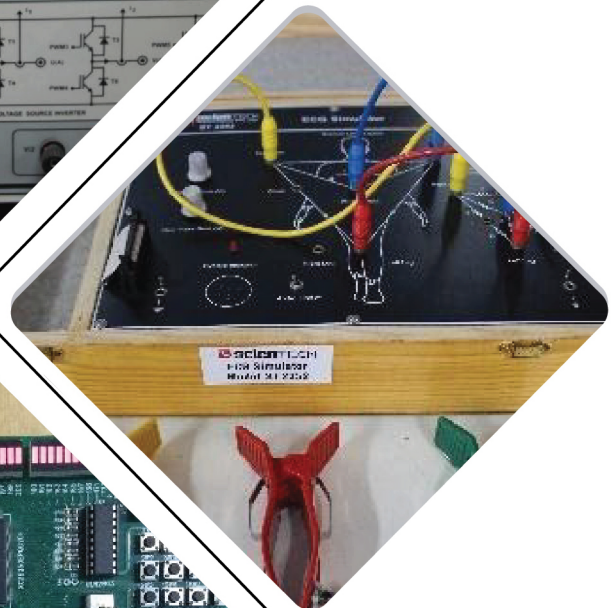


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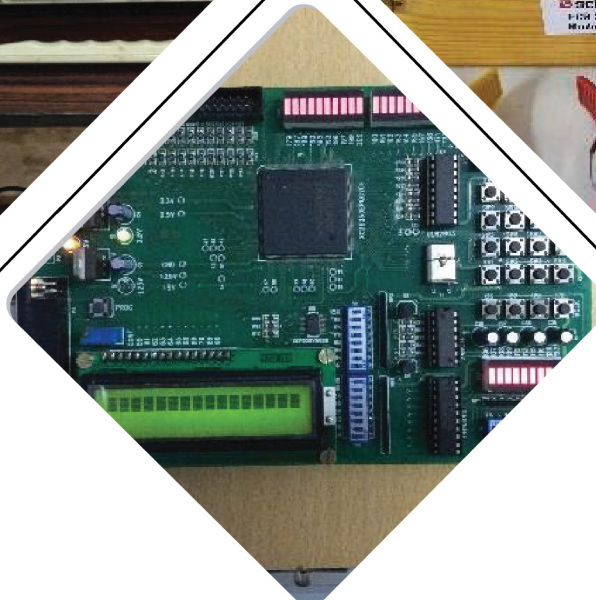
## POWER ELECTRONICS LAB



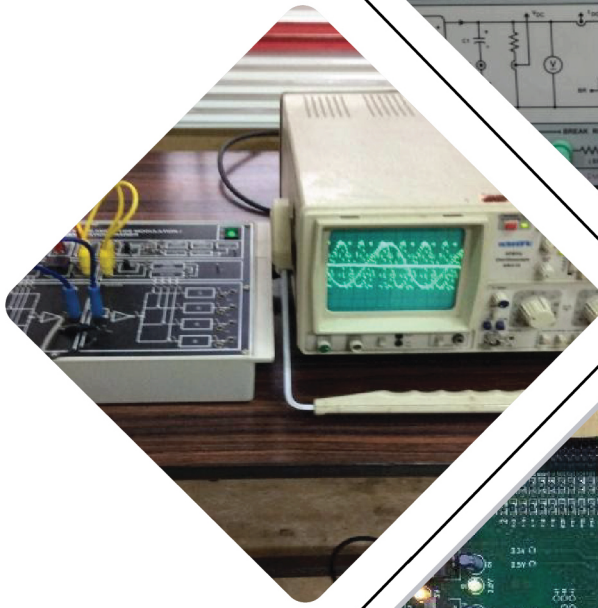
## BIOMEDICAL ELECTRONICS LAB



## VLSI LAB



## COMMUNICATION ENGINEERING LAB



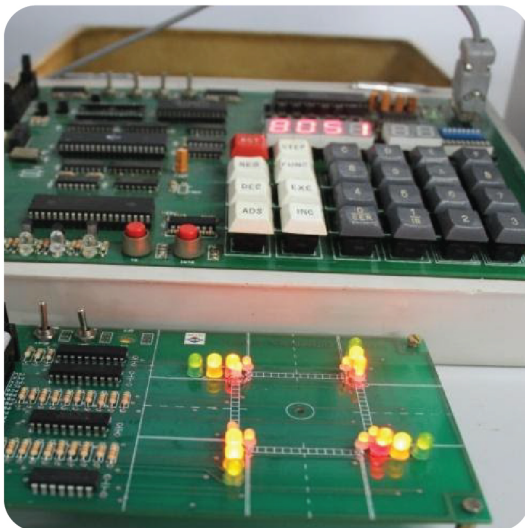


# Facilities in the Department

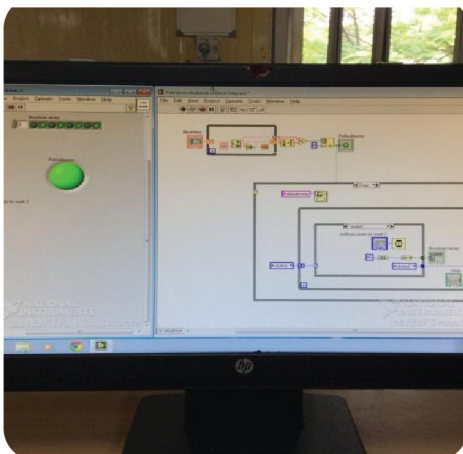
## PROGRAMMABLE LOGIC CONTROLLER (PLC) LAB



## EMBEDDED SYSTEMS LAB



## APPLICATION SOFTWARE AND SIMULATION LAB





# NITTTR, CHENNAI



## Contact



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**Ph.: +91 - 44 - 2254 5406, +91 - 944 418 9486**