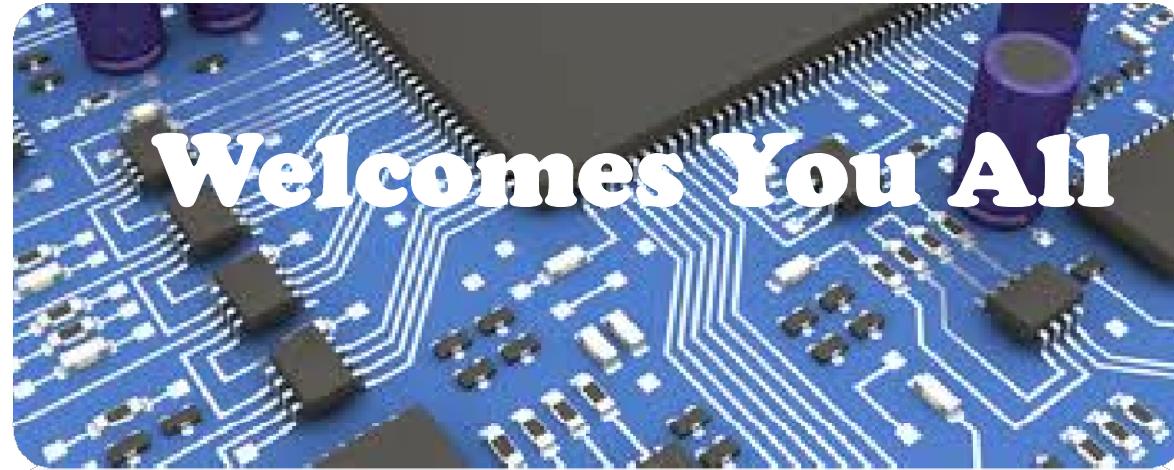




National Institute of Electronics and Information Technology , Calicut



Online Internship Training on Embedded & IoT Systems





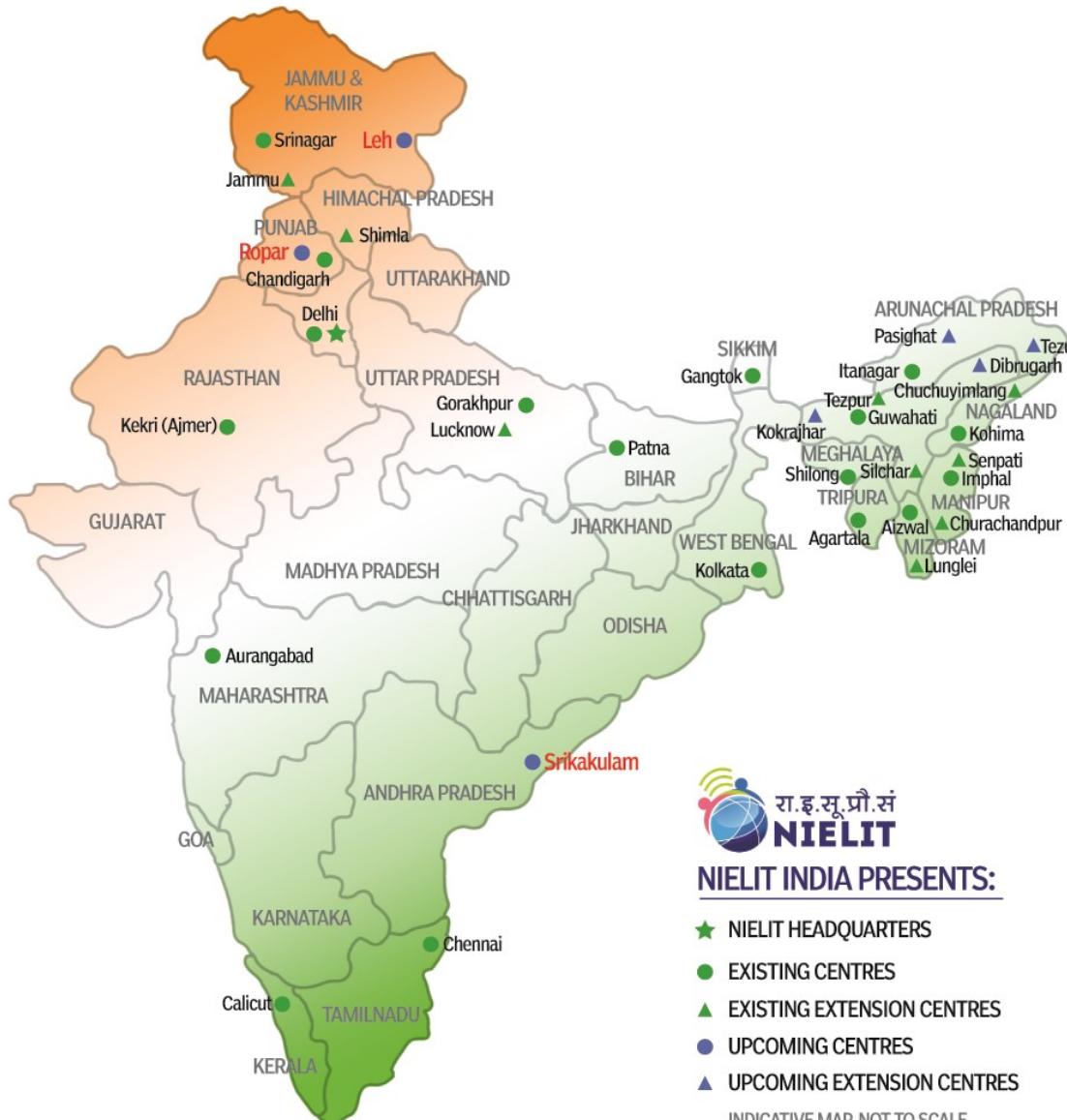
National Institute of Electronics and Information Technology

National Institute of Electronics and Information Technology (NIELIT)

NIELIT

- ❖ The Skill development and Capacity Building arm of the Ministry of Electronics and Information Technology (MeitY), Government of India.
- ❖ PAN India presence - own Centres at 43 locations.
- ❖ Network of more than 900 Accreditation Centers and 8500+ Facilitation Centers.
- ❖ Formal degree & non-formal skilling courses as per Industrial requirements.
- ❖ NIELIT qualifications are widely accepted at National & International level
- ❖ NIELIT courses are recognized for both recruitment & promotion by number of State Governments.
- ❖ National Examination body that is conducting examination in online (proctored and remote proctored mode) and offline mode across the country.

National Institute of Electronics and Information Technology (NIELIT)





National Institute of Electronics and Information Technology, Calicut

(A Centre of NIELIT, New Delhi)
**An Autonomous Scientific Society,
Ministry of Electronics & Information Technology, Govt. Of India**

(ISO 9001:2015 Certified)



* About NIELIT Calicut Centre

- ESTABLISHED DURING 1989 as CEDT
- Assistance received from Govt of Kerala, UNDP and Project IMPACT
- In 2003 merged with DOEACC, renamed as NIELIT since 2012
- State of the art Facilities in lush green ambiance
- Qualified Scientists & Engineers with industry exposure & trained abroad
- Courses approved by AICTE and affiliated to APJ AK T University
- Hostel facilities to accommodate 250+ candidates



- ❖ **Education & Training**
- ❖ **Product Development (h/w & s/w)**
- ❖ **Service and Consultancy**
- ❖ **Collaborative Research**
- ❖ **Projects & Scheme Implementation**

Territory covered: Kerala, Karnataka & Lakshadweep

OBJECTIVE:

- Bridge the gap between academia and industry - by offering, Skill Enhancement Training Programs relevant to industries
- To take up Product Development and Consultancy services in core areas of Electronics & IT

Thrust Areas



- ❖ **Embedded Systems & IoT**
- ❖ **Control & Instrumentation**
- ❖ **VLSI Design**
- ❖ **Information Technology**
- ❖ **Product Engineering**

Long Term Formal Courses

(Approved by AICTE & affiliated to APJ AK TU)

- MTech in Embedded System (2005)
- MTech in Electronic Design Technology (2001)



Duration – 2 years

Total Seats – 36

Admission – May/June

- M Tech in VLSI & Embedded Hardware (2017)

(Joint program with Defense Institute of Advanced Technologies (DIAT) PUNE)

* Major Activities Cont...

Non-Formal Programs

- PG/Advanced Diploma Courses in the following areas

- ❖ Embedded Systems, VLSI & IoT
 - ❖ Process Control & Instrumentation
 - ❖ Electronic Product Design
 - ❖ IT Applications (Info Security , Data Analytics, AI, S/W Technology)



- Certificate Courses

- Customized Training programs

- ❖ Faculty Development, Custom/Corporate Training



- Academic Projects & Internships

- Work Shops & Seminars

- On-line Courses, On-line examinations

- Sponsored Projects – Training and R&D

➤ Schemes of NIELIT, O/A/B/C, CHM 'O', BCC, CCC etc.,

➤ Programs inline with policies of GoI (MeitY)

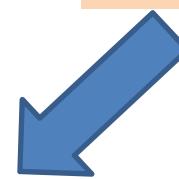


* In-house Developed Products

Few Old
Products

- 16-bit 80C196 based Microcontroller Development Kit
- 8-bit 8051/ PIC18F452 based Microcontroller Development Kits
- 32-bit TMS320C32 based 32-bit DSP Development Kits
- IoT Trainer Kit
- Hardware Accelerated Near-Field Beamformer for Imaging SONAR
- Indigenous Color Doppler Ultrasound Scanner With PNNDT Compliance
- Low cost Ventilator

Recent
Projects



* Consultancy Projects Carried out

- Low cost speech card attachment to STD-PCO monitor for visually Handicapped.
- Remote Telemetry for rain gauges and stream gauges.
- Microcontroller based evaporation rate measurement unit.
- Ground Water Level monitoring unit.
- Batch Automation System for CF Plant - MILMA
- UVC for Brushless Alternator - KEL, Kundara

Few Old Projects



- Technology Platform for Muziris Heritage Project - Govt of Kerala.
 - Customization of Technology Platform for Kerala L A Museum.
 - Temple Automation - Malabar Dewasom Board (30 temples)
 - Design & Development of Driver for low cost LED lighting.
 - Design of Automated IV fluid flow monitoring system.
 - Remote controller for coconut climbing machine.
- ✓ Commercialized over 50 product technologies for SSIs

Recent Projects



MeitY Funded Projects

❑ Indigenous Color Doppler Ultrasound Scanner with PNDT Compliance.

3 years w.e.f, Sept.2015 , Product Development to facilitate “Make in India” by DeitY (274.38 Lakhs)

❑ Special manpower Development Program for Chips to System Design (C2SD)

5 Years w.e.f. Dec.15 Capacity Building project by DeitY Rs . 94.4 lakhs (Only MeitY Society as PI))

❑ Information Security Education & Awareness (ISEA)– II.

5 Years w.e.f. 01.04.2014 - Capacity Building: funded by MeitY (Rs. 76.91 Lakhs).

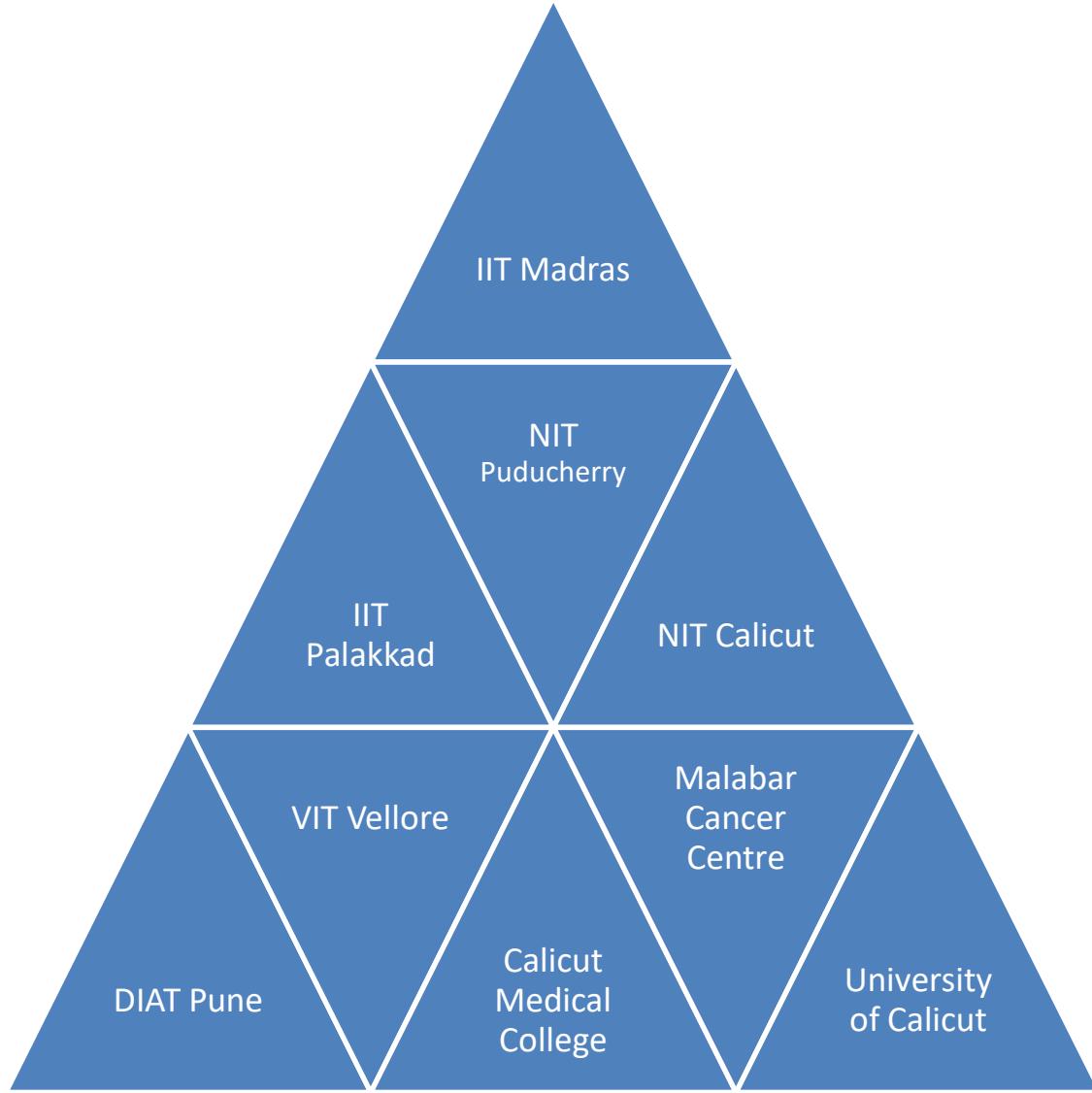
Training of over 3000 candidates in information security and related areas

❑ IT Skills & e-Inclusion through low cost access devices based awareness for ST. (Successfully completed recently)

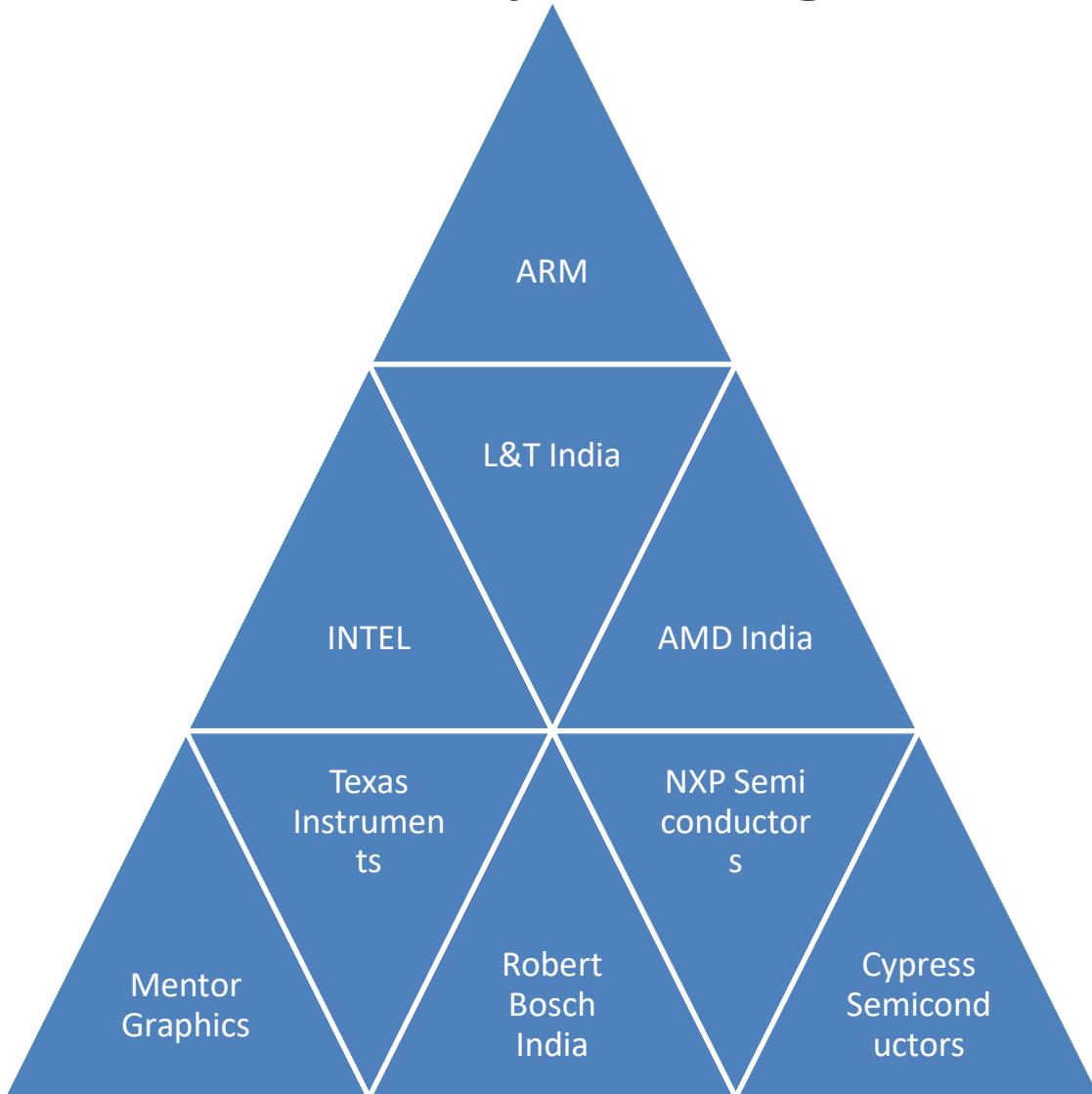
Jointly with Amritha University- 3 years from 4th July, 2014 Capacity Building: funded by MeitY (Rs.132.47 lakh) .

Trained of 1500 candidates in IT skills, ACC and health awareness

Institute Linkages



Industry Linkages



MieTY Funded Projects

WiseL Handed Knowledge

❑ Indigenous Color Doppler Ultrasound Scanner with PNNDT Compliance.

3 years w.e.f. Sept.2015 , Product Development to facilitate "Make in India" by DeitY (274.38 Lakhs)

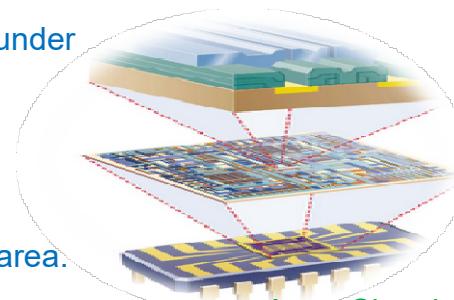
- ✓ Indigenous design is First time in India.
- ✓ High Social relevance by making the system PNNDT Compliance.
- ✓ Huge Money savings for the Nation, by import substitution.
- ✓ Plethora of Applications and very few researchers in India.
- ✓ Ultrasound research platform, enables high end research ,First time in India.
- ✓ High quality manpower development in Electronic Product Design, R&D in Medical imaging etc.
- ✓ High quality manpower development in Electronic Product design, R & D in Medical Imaging etc.



❑ Special manpower Development Program for Chips to System Design (C2SD)

5 Years w.e.f. Dec.15 Capacity Building project by DeitY Rs . 94.4 lakhs (Only MieTY Society as PI))

- ✓ Design and Development of Array Signal Processor ASIC (Single chip solution for under water acoustic CAMERA/SONAR and medical imaging)
- ✓ Training of Minimum 180 candidates in VLSI/ESDM area
- ✓ Training of candidates at Doctoral level (PhD)
- ✓ To introduce new PG Programme in Electronic System Design and Manufacturing area.
- ✓ Capacity building in ASIC Design & Verification , Manufacturing and Chip to System Design.



Array Signal
Processor ASIC
For NPOL Cochin

Major Collaborations

Major Collaborations

- Joint M Tech Program in VLSI with DIAT , DRDO, PUNE on strategic applications.
- IIT Madras MoU on academic, R & D in the areas of Bio Medical Engineering
- Tie-up with VIT Vellore on All India PG Diploma implementation.
- Intel India & NIELIT Calicut – Internet of Things (IoT) Laboratory.
- Malabar cancer Centre (Govt of kerala) on Bio Medical Engineering
- Indian institute of Spices Research Calicut (IISR)- IT Facility Management.
- IT Mission Kerala – Capacity building in IT security.
- SAMETI – Training on ‘ICT & Social Media for Govt Agricultural Officers of Kerala.
- Maker Village (Kerala IT Mission) collaboration on capacity building & start-up promotion

* Infrastructure/Facilities

- Six Sophisticated Laboratories
- Smart Class Rooms
- Workshop
- Library
- IEEE on line access
- Seminar Hall
- Conference Room
- Open air theatre

Total land : 25 Acres
(in two campuses)



National Knowledge Network (1Gb/s)



24x7 Wi-Fi Enabled Campus

NIELIT CALICUT

5/24/2021

- ❖ Main building: 5000 sq. m.
 - ❖ Canteen and Hostels: 1761sq.m
- Also houses:* Staff Quarters & Guest rooms

MCC- Model Career Centre *(By D G E, Govt of India)*

Model Career Centre

- Directorate of Employment, **Ministry of Labour & Employment**(MoLE) has launched **the National Career Services (NCS)**, this initiative aims to provide a variety of employment related services including "**Model Career Centres**", with primary focus on ***Career Counseling***.
- **Enable aspiring youth to pursue right career choice according to their aptitude.**
- Model Career Centres will be a reservoir of skilled talent pool, where the Industry can tap in from, thus establishing ***a seamless employer-employee connect***

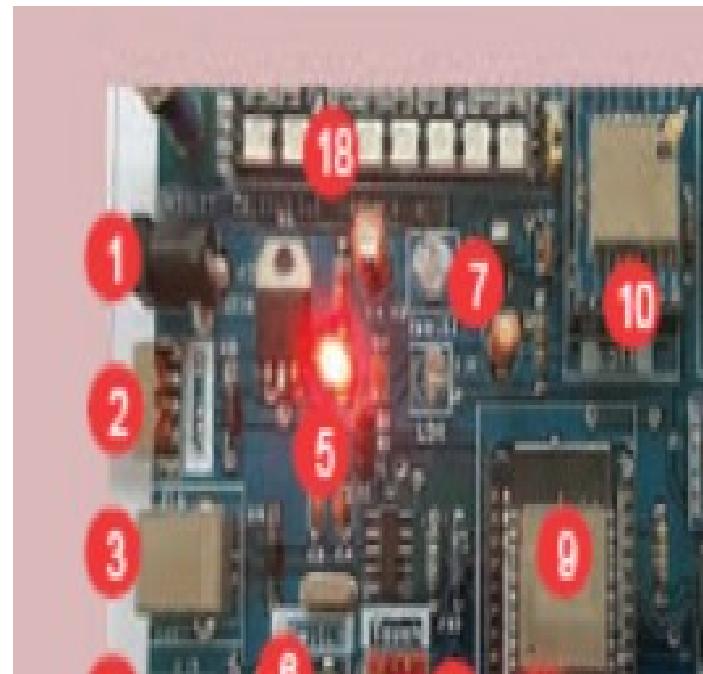
PLACEMENT : IN-HOUSE PROGRAMS

M Tech students 100% placement & Others 30-50 %

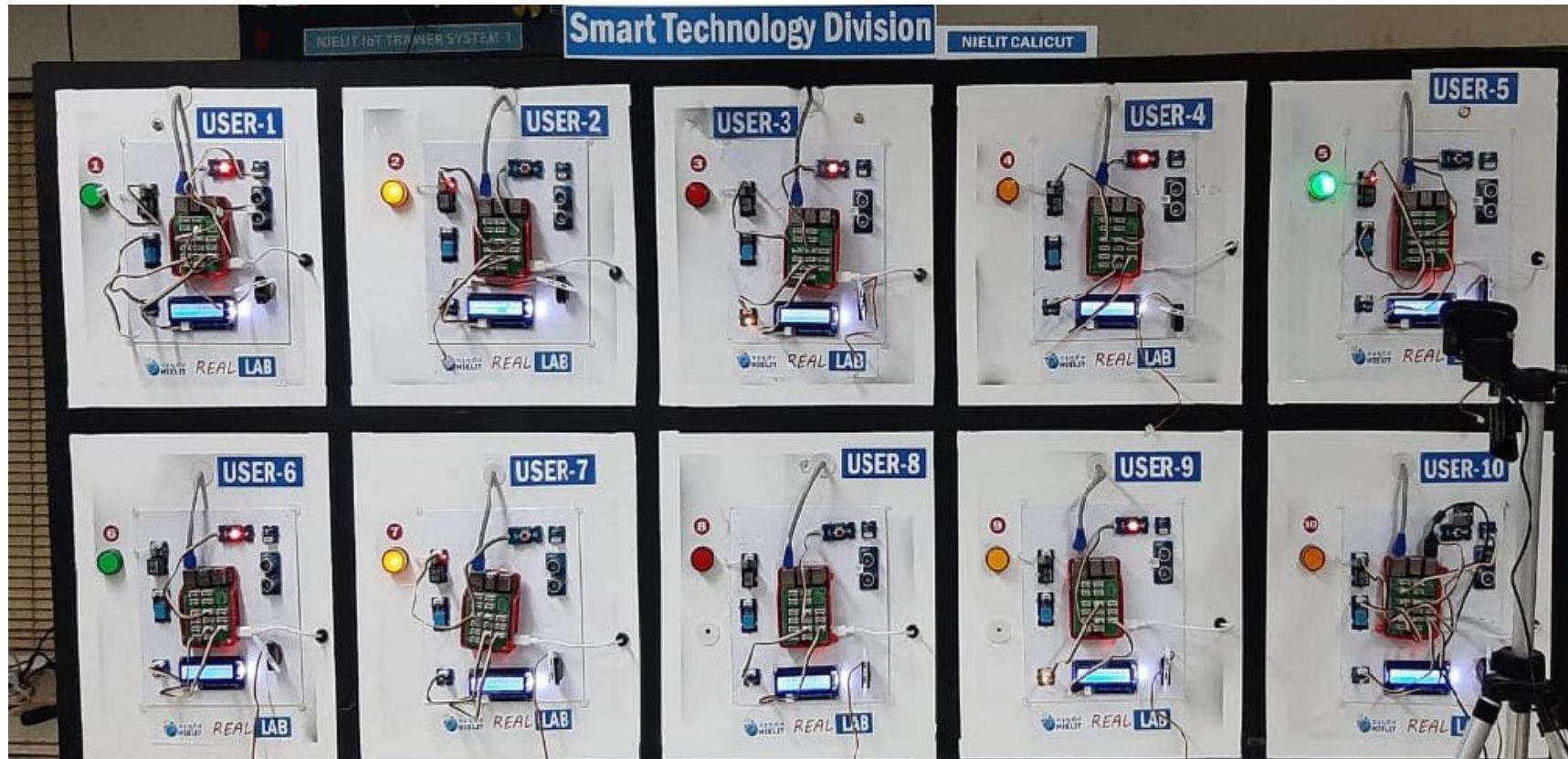


IoT Trainer Kit

- Bluetooth
- WiFi
- Proximity Sensor
- USB Powered
- Temperature/Humidity Sensor
- OLED
- CAN
- 2 DC Motor Drive/PWM
- Digital Light Sensor



Rpi – Real Lab



Training Programs

- Ph.D.
 - Medical Ultrasound Signal Processing
 - VLSI Signal Processing Architecture
- M.Tech
 - VLSI and Embedded Systems
 - Embedded Systems
 - Electronics Design Technology
- Blended Online PG Diploma Programs in Embedded & VLSI
 - <https://nielit.gov.in/calicut/course-calendar?coursecode=ED500Online>
 - <https://nielit.gov.in/course-calendar?coursecode=VL500Online>
 - <https://nielit.gov.in/course-calendar?coursecode=VE600Online>
- Industry Minor Courses for B.Tech. Students

Introduction to the Course

**Online Internship Training on
Embedded & IoT Systems**

24th May – 18th June 2021 (4 Weeks)

Who should attend this?

- Students Pursuing Engineering and Completed up to Sixth Semester of the BE/B.Tech Course in
 - *Electronics/ Electronics & Communication/ Electrical/ Electrical and Electronics/Instrumentation/ Biomedical/Computer Science/Information Technology.*

Course Content

- Introduction to Embedded Systems
- Architecture of Embedded Systems
- IoT Overview and Hardware Platforms
- ARM Architecture and Lab Session with ARM Simulator
- Embedded Trends and Projects
- Basic C Programming Concepts
- Introduction to Arduino IDE
- Communication
- Prototyping basics

Course Content

- Sensors and Actuators
- GPIO Programming in Arduino
- Experiments with Sensors Interfacing in Arduino
- Interfacing with smart Phone Application
- Node MCU
- IoT Cloud Platforms
- Evaluations & Feedback

Course Conduction

- LMS Platform - <https://el.calicut.nielit.in/>
- Sessions as Live/ Pre-Recorded/ Doubt Clearing/ Demonstrations
- Communication via registered e-mail

Course Coordinator Contact

Sureshkumar Gaddi

Senior Technical Assistant

7013705343(Mobile)

9490686278(WhatsApp)

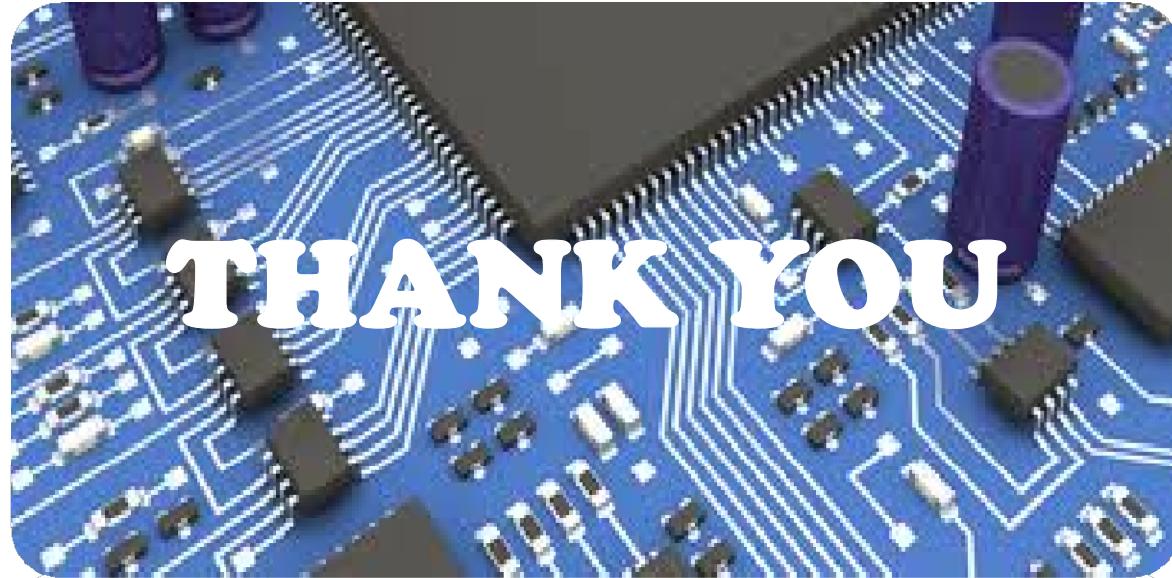
sureshkumar@calicut.nielit.in

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- <http://nielit.gov.in/calicut/calicut/content/internship-industrial-training-programs>



<http://nielit.gov.in/Calicut>



Thank You

End of Session

