IIT PALAKKAD

Nurturing Minds for a Better World

Research Admissions 2021-22

Indian Institute of Technology Palakkad

Information Brochure

CONTENTS

1. Important Dates[1]

Advertisement to Appear	07 April, 2021
Application Portal Opens	09 April, 2021
Last date for submission of application online	04 May, 2021
Shortlist to appear	On or before May 25, 2021
Statement of purpose (SOP) to be submitted	On or before May 30, 2021
Interview dates	During June 07 –June 28, 2021
Selection list to appear	July 08, 2021
Last date to issue admission letters	July 15, 2021
Date of Admission	To be announced

2. Important Guidelines for MS (by Research) and Ph.D. Application

i	Please read the instructions given in the admission brochure carefully before filling up the application form.
ii	Online application form is available at the Institute website iitpkd.ac.in. After filling the form, please take a printout and keep it for records.
iii	The application fee is as follows: GN/OBC-NCL/EWS Male candidates: Rs.100/- GN/OBC-NCL/EWS Female candidates: Rs.50/- SC/ST and PwD candidates: Rs.50/- APPLICATION FEE IS NON-REFUNDABLE
iv	A valid OBC-NCL /EWS certificate must be uploaded with the ONLINE application and submitted at the time of admission
v	You should check the IIT website for important announcements and the results
vi	Candidates called for an interview must bring with them a printed copy of the application that they submitted online along with originals and photocopies of the relevant certificates.

1 Any changes in dates will be notified on the institute website.

3. The Institute

The Indian Institute of Technology Palakkad (IIT Palakkad) is an autonomous institute of national importance established in 2015 by the Government of India as one of the third generation IITs. IIT Palakkad conducts undergraduate academic program of B. Tech, postgraduate course programs of M. Tech and M. Sc. and research programs leading to M.S and Ph. D. in various disciplines.

The Academic Block in Ahalia Campus where IIT Palakkad started/continues (partly) functioning.

Presently the programs are conducted one half in the temporary campus of Ahalia International Foundation and the other half in the Nila campus which houses the transit facilities at the permanent campus site at Pudussery. The permanent campus is about 7 km from Palakkad in the Palakkad-Coimbatore highway. The scenically charming sprawling permanent campus is now being developed into an excellent and modern technological campus. As of now, the Institute is proud of fast growth in terms of the very qualified and committed faculty and staff, well equipped laboratories, excellent computing infrastructure, well stacked library and a brilliant student community.

4. Disciplines and Research Areas at IIT Palakkad

All the disciplines/streams of the Institute started functioning in August 2015. B.Tech programs in the four disciplines of Civil Engineering, Computer Science and Engineering, Electrical Engineering and Mechanical Engineering started in 2015. Research programs leading to MS and

Ph.D. commenced in August 2017. Major highlights of the different disciplines, research areas and research facilities are given below.

Main Entrance to the Nila campus (Transit facilities)

4.1. Chemistry

The Faculty

1. Dr Debarati Chatterjee, PhD (IISc, Bangalore)
2. Dr Dinesh Jagadeesan, PhD (JNCASR, Bangalore)
3. Dr Mintu Porel, PhD (University of Miami, USA)
4. Dr Padmesh A, PhD (Massey University, New Zealand)
5. Dr. Priyakumari C P, (Inspire Faculty), PhD (IISER TVM)
6. Dr Supratik Sen Mojumdar, PhD((IACS, Kolkata)
7. Dr Sushabhan Sadhukhan PhD (Case Western Reserve University, USA)
8. Dr Shanmugaraju Sankarasekaran, PhD (IISc Bangalore)

In the initial years from 2015, the Discipline of Chemistry was involved in instructional work of the B.Tech courses. In July 2017, the department took a leap to start its Ph.D. program and in 2019 it started the M. Sc. program. Currently, a total of 11 Ph.D. scholars and 1 postdoctoral fellow are working in various areas of theoretical and experimental chemistry under the guidance of the highly motivated faculty of the department.

Research Areas

- Fundamentals studies on biophysical chemistry.
- Molecular dynamics simulations.
- Mechanochemistry.

- Equilibrium and non-equilibrium statistical mechanics of soft matter.
- Structure and dynamics of the biopolymers / macromolecules.
- Materials chemistry and heterogeneous catalysis.
- Organic macromolecules - design, synthesis and applications.
- Self-assembly formation of discrete supramolecular ensembles and study of their functional applications.
- Engineering mesoporous polymers for selective adsorption and sequestration of pollutants/ hazardous substances.
- Fabrication of functional nano-structures for bio-medicine.
- Design, synthesis and development of novel molecular entities for targeted therapy.
- Bio-orthogonal chemistry in drug discovery.

Research Areas Available for Admission in July 2021

- Organic Chemistry
- Inorganic Chemistry
- Physical Chemistry

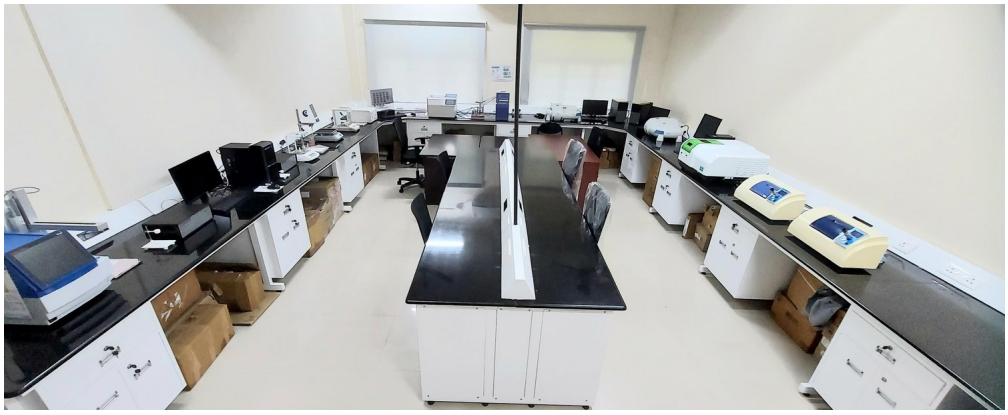
Facilities

The Department has an undergraduate Chemistry Laboratory (1650 sq. feet), well equipped with several basic Physical, Inorganic, and Organic experimental infrastructure such as

- Analytical balance,
- Benchtop conductivity meter,
- Benchtop pH meter,
- Digital colorimeter with micro control and 8 filters,
- Ice flake machine,
- Melting point apparatus,
- Spectrophotometer,
- Ultrasonic bath
- UV-vis spectrophotometer
- Fluorescence spectrophotometer
- Microwave reactor
- Cyclic Voltammeters
- Physisorption
- Optical microscope
- Polarimeter
- Bomb Calorimeter

- Electrophoresis

A number of analytical equipment required for chromatography and spectroscopy such as TG-DTA-MS, Benchtop NMR, FT-IR, Chemisorption, UV-vis, and Fluorescence spectrophotometer are available.



In addition to this, for conducting advanced research, IIT Palakkad has set up different central facilities for experimental and theoretical studies such as the Chandra High Performance Computing Cluster, Central Instrumentation Facility (CIF), and Central Micro-Nano Fabrication Facility (CMFF). As a part of the central facilities, sophisticated instruments (relevant to the field of chemistry) such as High-performance liquid chromatography (HPLC), Liquid Chromatography-Mass Spectrometry (LC-MS), Thermal Gravimetry Analysis, gas Chromatography, FT-IR, Raman and Fluorescence spectrophotometers, Automated Flow Chemisorption, Scanning Electron Microscope, X-ray diffractometer and a bench-top Nuclear Magnetic Resonance (NMR) spectrometer for analysis and characterization of samples are already set for use.

UG / PG Lab of the discipline of Chemistry

4.2. Civil Engineering

The Faculty

1. Prof Tom V Mathew, PhD (IIT Madras)
2. Dr Anil Kumar M V, PhD (IIT Madras)
3. Dr Athira P, PhD (IIT Madras)
4. Dr B K Bhavathrathan, PhD (IIT Bombay)
5. Dr. C V Veena Venudharan, PhD (IIT Kharagpur)
6. Dr Divya P V, PhD (IIT Bombay)
7. Dr Madhu Karthik M, PhD (Texas A&M University, USA)
8. Dr Praveena Gangadharan, PhD (IIT Madras)
9. Dr Rakesh J Pillai, PhD (IIT Madras)
10. Dr Sanjukta Chakraborty, PhD (IIT Kanpur)
11. Dr Sarmistha Singh, PhD (Auburn University)
12. Dr Senthilkumar V, PhD (IIT Madras)
13. Dr Subhasis Mitra, PhD (Auburn University, USA)
14. Dr Sudheesh T K, PhD (The University of Florida, USA)
15. Dr Sunitha K Nayar, PhD (IIT Madras)
16. Dr. Gokulnath C, PhD (IIT Madras)

Civil Engineering is one of the four B.Tech programs that is being offered at IIT Palakkad since its inception in 2015. Ph.D. and M.S. programs in Civil Engineering, with specializations in Structural, Geotechnical, Water Resources, Transportation and Environmental Engineering started in July 2017. The Discipline of Civil Engineering started offering a two-year M.Tech. program with a specialisation in Geotechnical Engineering in the academic year 2019-20. In a short span of four years, the Civil Engineering stream has successfully set up all basic labs for the B.Tech program. In addition, several advanced labs have also been set up for use of the undergraduate and postgraduate students and to execute research projects.

The faculty members in Civil Engineering come with academic training and experience from various reputed institutes in India and abroad. The diverse background of the faculty helps to bring in different perspectives to teaching and in research to the students in Civil Engineering.

Research Areas

- **Building Materials:** Performance assessment and optimization of special concretes for

structural systems such as FRC & SCC; development of design methodologies for structural systems using high performance concrete; sustainable building materials

- **Construction Engineering and Management:** IT Application in Construction Automation, Design Management, Lean Construction, Reality Modeling and BIM Applications in Construction Management, Policy Making in Infrastructure Project Delivery.
- **Environmental Engineering:** Water and wastewater treatment; microbial fuel cells; electrochemical treatment techniques
- **Geotechnical Engineering:** Experimental Geotechnics, Physical modelling in Geotechnical Engineering, Deep Foundations, Soil Stabilization and Ground Improvement Methods, Geosynthetics and Reinforced Earth, Geo-Environmental Engineering, Cyclic Behaviour of Soils, Computational Methods in Geotechnical Engineering, Landslides and slope stability, constitutive modeling in geomechanics.
- **Structural Engineering:** Steel structures, Reinforced and prestressed concrete structures, Steel-concrete composite structures, Structural evaluation of
- deteriorated structures, adaptive passive control, optimal feedback control and related study on stability, robustness, time delay, testing protocol to reproduce the prototype behavior, Constitutive modelling, Continuum mechanics, Experimental mechanics
- **Transportation Engineering:** Transportation Planning; Traffic Flow Modelling and Simulation; Traffic Safety; Pavement Materials; Pavement Design; Pavement Evaluation; Pavement Management Systems

Some basic laboratory equipment

- **Water Resources Engineering:** Climate change and climate variability impacts on water resources and crop production; Study and forecasting of extreme events; Nonpoint source pollution analysis; Hydrologic and water quality modelling; Forecasting of water resources; Integrated water resources management

The faculty members of Civil Engineering are also actively involved in executing several state specific projects such as:

- Climate and land use change impact analysis on Bharathapuzha river Basin Drought preparedness in Kerala: A comprehensive assessment with respect to climate change
- Site inspection for feasibility of preliminary geotechnical investigation for rail fencing at Walayar range Stability study on elephant guard fence in Anakulam, Munnar
- Three day short term course on roadway materials, design and Construction organized for for Kerala PWD engineers
- Ground improvement and integrity of existing BPCL cross-country pipelines, Cochin, Kerala

Apart from the scholastic activities, the students, staff, and faculty members in Civil Engineering are actively involved in several outreach programs such as Unnat Bharat Abhiyan, clean energy and clean water campaign, national science day, and Vigyan Jyothi to name a few.

Research Areas Available for Admission in July 2021

- Water Resources Engineering
- Construction Engineering and Management
- Building Materials
- Transportation Engineering
- Structural Engineering
- Geotechnical Engineering

Facilities

- **Structural Engineering**: 100 kN and 500 kN Servo Hydraulic Universal Testing Machines; Actuators:100 kN, 250 kN, and 500 kN; 2D and 3D testing frames; data acquisition systems, Load Controlled UTMs :300 kN and 3000 kN, Speed Control motor Material characterization: Servo hydraulic compression/flexural testing system 3000kN, 300 kN, 100 kN, 15 kN; SCC testing
- **General computational facilities**: Various analysis and design Software, Finite Element Method software, Spatial data analysis Software, and High-performance computing cluster of the Institute.
- **General workshop**: Lathe, milling, grinding and drilling machines, welding, power tools etc.
- **Transportation Systems:** PTV Vissim, PTV Visum, Cube Analyst, Synchronous video cum GPS logger, ArcGIS
- **Pavement Engineering:** (1) Conventional Bitumen Tests, (2) Aggregate Tests, (3) Bituminous Mix Design, & (4) Performance Characterization
- **Environmental Engineering:** (1) UV Spectrophotometer (2) TOC Analyzer (3) Multi-Channel Potentiostat.

Some advanced laboratory equipment

- **Geotechnical Engineering:** (1) Fully automated static triaxial system, (2) Computerised cyclic triaxial system, (3) Computerised flexible wall permeability system (4) Automated consolidation test apparatus, (5) Computer controlled direct shear test setup, (6) Fully automated soil-geosynthetic interface shear resistance testing apparatus, (7) CBR Test apparatus, and (8) all the basic equipment for soil characterization

4.3. Computer Science and Engineering

The Faculty

1. Dr Albert Sunny, Phd (IISc Bangalore)
2. Dr Chandrashekar Lakshminarayanan, PhD (IISc Bangalore)
3. Dr Deepak Rajendraprasad, PhD (IISc Bangalore)
4. Dr Jasine Babu, PhD (IISc Bangalore)
5. Dr Krithika Ramaswamy, PhD (IIT Madras)
6. Dr Mrinal Kanti Das, PhD (IISc Bangalore)
7. Dr Piyush P Kurur, PhD (IMS Chennai)

8. Dr Sahely Bhadra, PhD (IISc Bangalore)
9. Dr Sandeep Chandran, PhD (IIT Delhi)
10. Dr Satyajit Das, PhD (University of South Brittany, France, University of Bologna, Italy)
11. Dr Unnikrishnan Cheramangalath, PhD (IISc, Bangalore)
12. Dr Vivek Chaturvedi, PhD (Florida International University, USA)

The Computer Science and Engineering (CSE) in Indian Institute of Technology Palakkad offers both undergraduate and graduate programs. The CSE envisions to impart knowledge across the depth and breadth of computer science and engineering. Unlike most contemporary CS programs, we introduce the students to state-of-the-art technology such as Artificial Intelligence, Machine learning and High Performance Computing through well designed courses in early semesters and encourage innovation through projects using these technologies. Our programs build a strong foundation in students and prepare them for both cutting edge technology industry jobs and higher education. We witness a very high percentage in placements every year. Many of our students are pursuing higher education in reputed universities in India and abroad.

Research Areas

- Theoretical Computer Science: Research areas include combinatorics, graph theory, algorithms, data structures, type theory, logic and complexity theory.
- Systems and Software: Research areas include computer architecture, Operating systems, compilers and programming languages, cyber security, IoT, software engineering, distributed systems, performance analysis and high performance computing.
- Artificial Intelligence and Machine Learning: Research areas include Bayesian learning, deep learning, reinforcement learning, Kernel learning, Privacy aware learning.

The CSE faculty members are active in research and continuously engage with industry and academia around the globe. There are active research collaborations with world class Universities such as Nanyang technological University Singapore, University of Alberta Canada, Aalto University Finland, University of South Brittany France and University of Bologna Italy to name a few.

Research Areas Available for Admission in July 2021

- Distributed and Interconnected Systems

- Machine Learning
- High Performance Computing
- Type Theory, Verification and Proof Assistants
- High-performance Embedded Systems
- Computer Architecture and Memory Organization

Facilities

The facilities at Computer Science and Engineering include the latest boards and software from ARM, Cadence, Xilinx necessary for developing modern Systems-On-Chip. The discipline also has a micro-nano device fabrication facility with Class 1 lakh and 10000 clean room, and a characterization facility.

4.4. Electrical Engineering

The Faculty

1. Prof. Vinod A Prasad, PhD (NTU Singapore)
2. Dr. Anirudh Guha, PhD (IISc Bangalore)
3. Dr. Arun Rahul S, PhD (IISc Bangalore)
4. Dr. Arvind Ajoy, PhD (IIT Madras)
5. Dr. Jobin Francis, PhD (IISc Bangalore)
6. Dr. Lakshmi Narasimhan T, PhD (IISc Bangalore)
7. Dr. Mahesh R Panicker, PhD (NTU, Singapore)
8. Dr. Manas Kumar Jena, PhD (IIT Delhi)
9. Dr. Revathy P, PhD (IISc Bangalore)
10. Dr. Shaikshavali Chitraganti, PhD (University of Lorraine, France)
11. Dr. Sneha Gajbhiye, PhD (IIT Bombay)
12. Dr. Sreenath Vijayakumar, PhD (IIT Madras)
13. Dr. Subrahmanyam Mula, PhD (IIT Kharagpur)
14. Dr. Sukomal Dey, PhD (IIT Delhi)
15. Dr. Swaroop Sahoo, PhD (Colorado State University, USA)
16. Dr. Vijay Muralidharan, PhD (IIT Madras)

The Department of Electrical Engineering (EE) at IIT Palakkad offers a vibrant environment for under graduate, post graduate education and research in many areas of Electrical Engineering. We are a team of 16 faculty members, 180 students and 4 staff members engaged in cutting edge research and teaching in several frontier areas of Electrical Engineering.

Research Areas

- **Biomedical Signal Processing and Imaging**: Research in Brain-Computer Interface Systems, ultrasound imaging, physiological sensing and monitoring, medical imaging.
- **Communication, Information Theory and signal processing**: Wireless communication, design and analysis of next generation cellular systems, cooperative communications, compressed sensing, statistical signal processing (detection and estimation theory), information and coding theory, machine learning for communication.
- **Control and Robotics**: Stability and control issues in networked control systems with/without constraints, Event triggered state estimation with noisy measurements, learning of dynamical systems. Design and development of interesting problems with wheeled, legged, humanoid robots, medical devices, robot vision having a multidisciplinary approach. Stability analysis of Nonlinear Systems, Modeling, analysis, and control design of robotic/aerospace/mechanical systems like unmanned rolling vehicles, underwater vehicles, surface vehicles, aerial vehicles.
- **Digital VLSI Design**: VLSI architectures for real-time signal processing applications, Energy-efficient VLSI Systems for machine learning.
- **Measurements and Instrumentation**: Measurements, sensor design, signal conditioning circuits, embedded systems in instrumentation and measurement, direct digital converters for resistive, capacitive and inductive sensors. Building instruments for measurements on micro-nano electronic devices.
- **Microwave integrated circuits including Antennas, Radar systems, and signal processing**: Microwave remote sensing, remote sensing applications of radars, weather radar design and signal processing, phased array weather radar. Microwave and Millimeter wave integrated circuits including Antennas, Radio Frequency MEMS.
- **Nanoelectronics, Plasmonics & Semiconductor Devices**: Research broadly in semiconductor devices and modeling, nanoelectronics, plasmonics/optoelectronics, development of instruments for experiments in nanoelectronics.
- **Power Electronics**: Voltage Source Inverters (VSI), modulation and control of voltage source inverters, control of power electronic systems, HVDC and FACTS, Modular Multilevel Converters, Renewable Energy, Induction Motor Drives.
- **Power Systems**: Power system modelling, wide-area measurement system (WAMS), wide area monitoring, protection and control (WAMPAC), Renewable and Distributed generation, Big data analytics, machine learning and signal processing for smart grid.

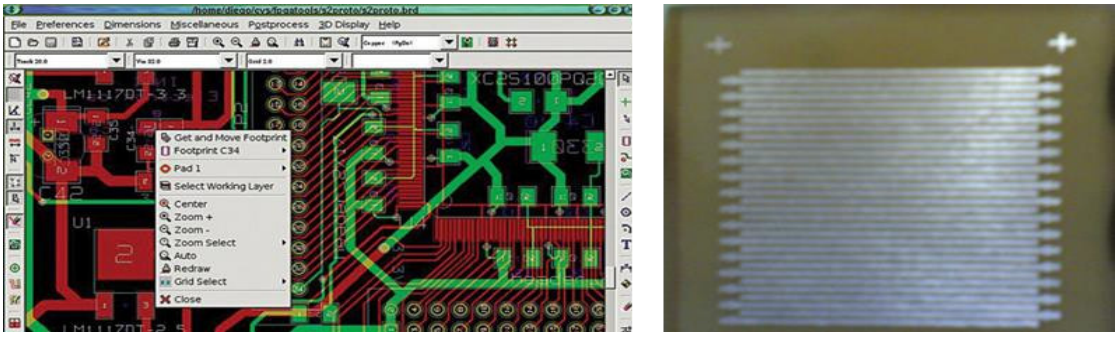
Research Areas Available for Admission in July 2021

- Communication and Signal Processing

- Control and Robotics
- Sensors, Actuators and Instrumentation
- Power Systems
- Antennas, Radar and Signal Processing
- Microwave Integrated Circuits including Antennas
  For More details refer to the document.

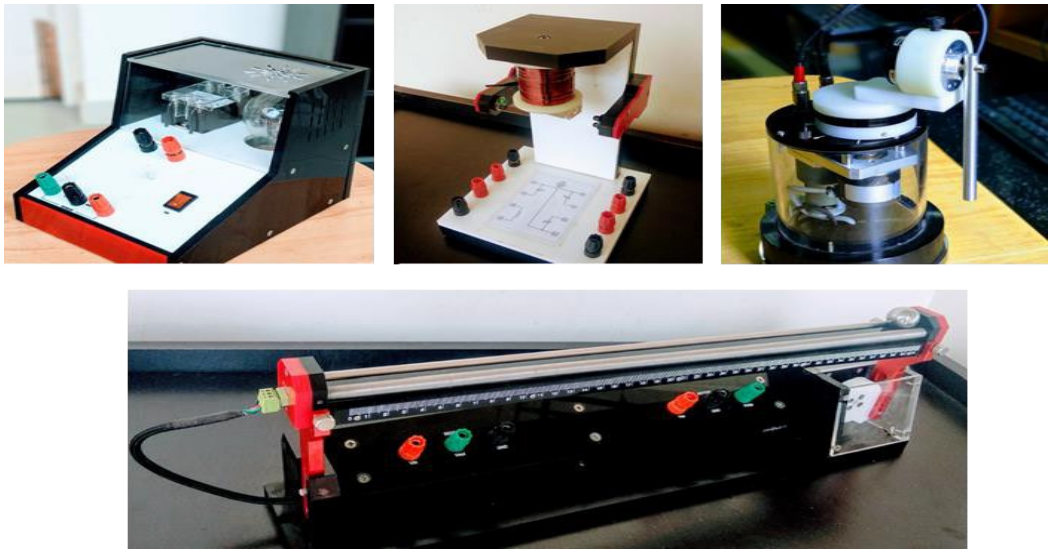
Facilities

- **Electronics Technology Laboratory**: Electronics Technology Laboratory provides an integrated environment for students to understand the working of analog and digital circuits, microprocessors, microcontrollers, and the interplay between computational tools and electronics hardware. Each desk is equipped with digital storage oscilloscopes, arbitrary waveform generators, power supplies and various prototyping boards (Field Programmable Gate Arrays, Microcontrollers, etc.) and a desktop PC. In addition, it houses the set-ups for control systems experiments such as ball and beam, rotary inverted pendulum, magnetic levitation and closed loop temperature controller. Digital Circuits, Analog Electronics, Computer Aided Design and Control Systems lab courses are also run in this laboratory.
- **Communications and Microwave Laboratory**: Communications and Microwave Laboratory provide an environment for understanding and experiencing the signal chain of a typical analog and digital communication system and microwave systems. Typical facilities include optical fiber training kits that have a multi-channel multiplexing encoder and a corresponding decoder with demultiplexer, where one can perform various wired optical communication experiments. The laboratory also houses software defined radios - national instruments 2901 and 2920 which are very versatile and reconfigurable radios that can operate in the range 70MHz to 6GHz and can be used to prototype various communication systems and new technologies for applications such as 5G and IoT.
- **Electrical Machines Laboratory**: Electrical Machines Laboratory provides students with an opportunity to understand the working of various AC and DC machinery. Some of the facilities include: 14 machine beds each consisting of 2 DC machines coupled with induction machine and synchronous machine, fully isolated voltage and current measurement units, data acquisition systems for capturing real time data, a unique make your own electrical machines by integrating various parts and its testing facility, bidirectional power DC power supply, special machines like BLDC, SRM, single phase and 5 phase machines, single phase and three phase and multi winding transformers.

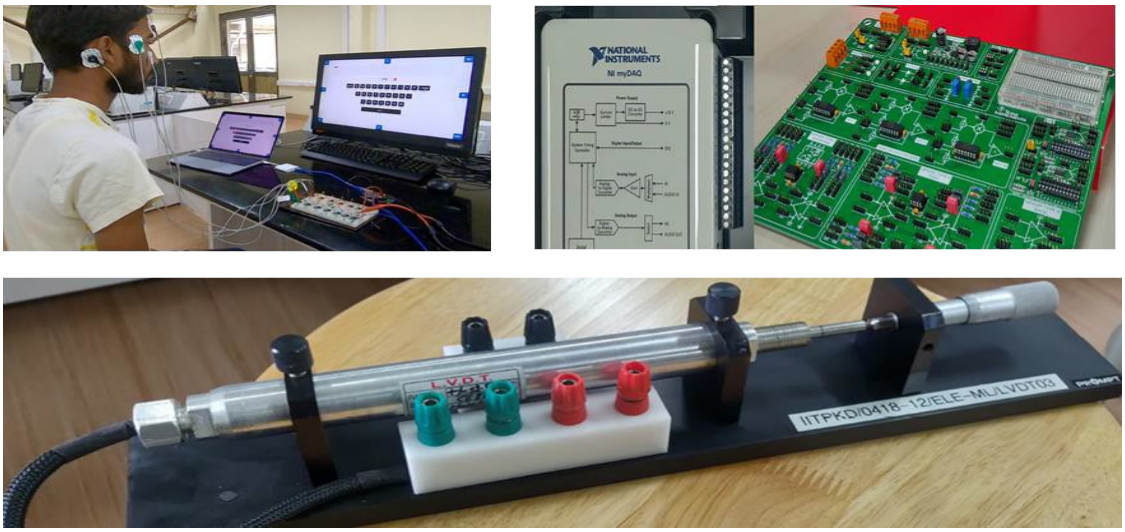


Computer Aided Design, Left: KiCAD for Layout, Right: Toner Transfer for PCB

- **Power Systems Laboratory**: Power Systems Laboratory provides students with an environment to experiment on various aspects of power systems including safety and quality. Some of the facilities include: Fault simulator for studying and analyzing various power systems faults, facility for studying parallel operation of alternators, facility for studying earth fault protection, differential protection, over voltage and over current protection, solar simulator for studying PV array characteristics, air blast circuit breaker assembly with earth fault protection, earth resistance measurement unit, power quality analyzer, insulation testers and Mipower for power system analysis.

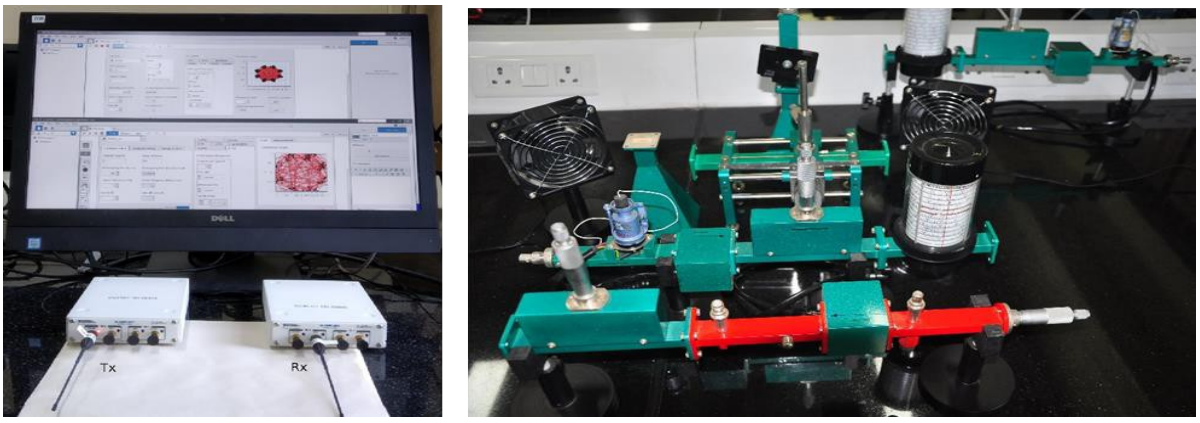


Control Systems Lab, In Clockwise Order from Top: Temperature Control, Magnetic Levitation, Inverted Pendulum and Ball and Beam Balancing

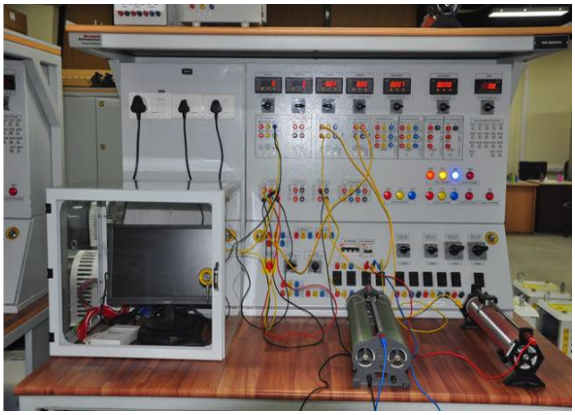


Measurements and Instrumentation Lab, In Clockwise Order from Top: Electro-oculogram EOG Data Acquisition, Analog Signal Conditioning (TI ASLK) and Data Acquisition (NI MyDAQ) and Linear Variable Differential Transformer (LVDT) setup

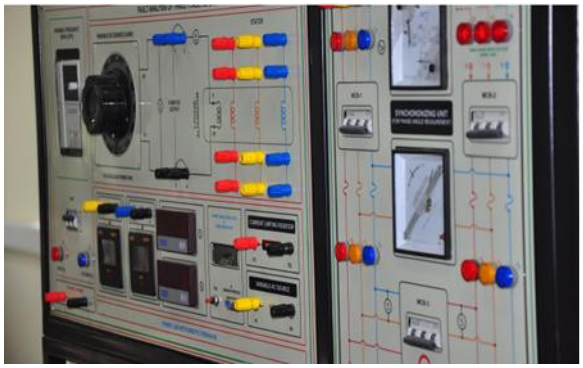
- **Power Electronics Laboratory**: Power Electronics Laboratory provides students with an exposure to latest trends in power electronics research and development. Facilities include: IGBT modules with isolated gate drive assembly45 kw Bidirectional DC power supply, TMS320f28379D controller boards, Spartan 6 FPGA cards, High end Oscilloscopes with differential probes for high voltage and high current measurement, Hall effect voltage and current sensors, Iron core and ferrite core inductors



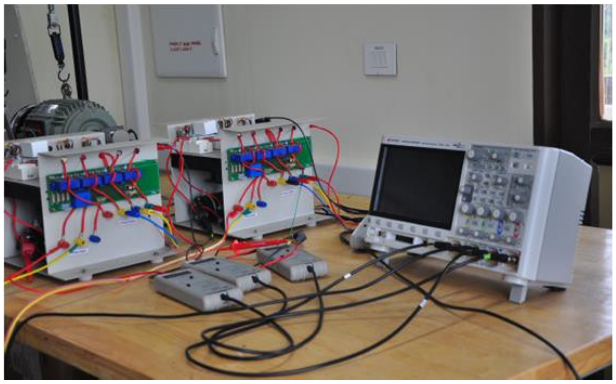
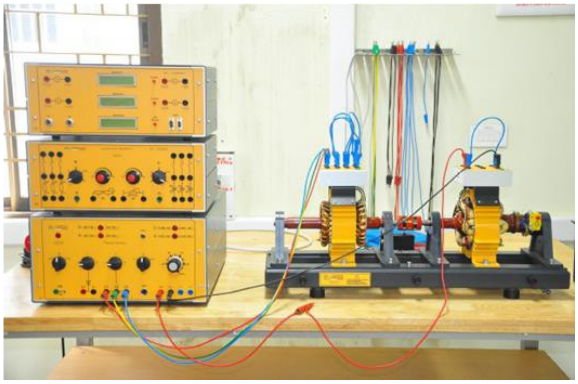
Communications and Microwave Lab, Left: Software Defined Radio (SDR) Kit, Right: Microwave Communication Set Up

Electrical Machines Lab, Left: Electrical Machines, Right: Advanced Human Machine Interface




Power Systems Lab, Left: Alternator Fault Simulator wWith Grid Synchronization Facility, Right: Solar Photo Voltaic Array Simulator

Power Electronics Lab, Left: IGBT based Inverter Modules, DSO and Differential Probes, Right: Facility to Assembling and Test Various Machines

4.5. Humanities and Social Sciences

The Faculty

1. Dr Amrita Roy, PhD (Jawaharlal Nehru University)
2. Dr Anoop George, PhD (IIT Bombay)
3. Dr Reenu Punnoose, PhD (Newcastle University, U.K)
4. Dr Sujatha G, PhD (University of Madras)

The Humanities and Social Sciences (HSS) at IIT Palakkad comprises a team of four faculty members and six PhD scholars who work on diverse research areas in Philosophy, Economics, Gender and Culture Studies and Linguistics. We offer a range of elective courses for undergraduate and postgraduate engineering and science students as well as core PhD- level courses for our doctoral scholars which encourage critical thinking, create awareness of real world issues and enable a comprehensive understanding of topics from multiple perspectives. The courses on offer also include those that aim to hone the soft skills of students and initiate pertinent conversations on ethical practices in research, in the workplace and life in general. In the long run, we hope to launch postgraduate programs within subject areas in the Humanities and Social Sciences and continue to engage in research at the intersection of subject areas within the HSS and between the HSS, science and technology.

Presently, two of our faculty members are part of the transdisciplinary Centre for Data Sciences inaugurated recently at IIT Palakkad, with varied interests in how to make AI platforms more linguistically diverse, the scope of AI to make English language teaching and learning a more inclusive process and also in exploring the scope of data science tools and techniques to inform economic policies.

Research Areas

- Economics: Development Economics
- Philosophy: Continental Philosophy, Phenomenology and Existentialism
- Linguistics: Experimental Phonetics, Sociolinguistics, Phonological language acquisition
- English: Modernity and Subject formation, Cinema, Gender and Culture studies

Research Areas Available for Admission in July 2021

- Linguistics (Experimental Phonetics/ Sociophonetics)
- English (Culture and Gender studies)

4.6. Mathematics

The Faculty

1. Prof. S H Kulkarni, PhD (IIT Bombay)
2. Dr. Arpan Kabiraj, PhD (IISc Bangalore)
3. Dr Ashok Kumar M, PhD (IISc Bangalore)
4. Dr G P Balakumar, PhD (IISc Bangalore)
5. Dr. Jaikrishnan Janardhanan , PhD (IISc Bangalore)
6. Dr Jayanarayanan C R, PhD (ISI Bangalore)
7. Dr Lakshmi Sankar K, PhD (Mississippi State University, USA)
8. Dr. Parangama Sarkar, PhD (IIT Bombay)
9. Dr Rohith Varma PhD, (Chennai Mathematical Institute, Chennai)
10. Dr Sarath Sasi, PhD (Mississippi State University, USA)

The Discipline of Mathematics at IIT Palakkad is strongly committed to excellence in research and teaching. We envisage a period of fast growth leading to a strong and diverse Mathematics community at IIT Palakkad. A Ph.D. program in the discipline of Mathematics was started in 2017. There are five Ph.D. level research scholars working in the Discipline of Mathematics now.

Research Areas

- Functional Analysis Geometry of Banach spaces
- Approximation Theory
- Banach algebras and Operator theory
- Partial Differential Equations
- Nonlinear Analysis
- Probability and Statistics
- Statistical Inference
- Several Complex Variables
- Information Theory
- Algebraic Geometry
- Commutative Algebra
- Low-Dimensional Topology
- Information Geometry.

Research Areas Available for Admission in July 2021

- Several Complex Variables
- Commutative Algebra
- Low-dimensional Topology
- Mathematical Statistics and Probability Theory

4.7. Mechanical Engineering

The Faculty

1. Dr. Afzaal Ahmed, PhD (NUS Singapore)
2. Dr. Anand T. N. C., PhD (IISc Bangalore)
3. Dr. Anoop Akkoorath Mana, PhD (IISc Bangalore)
4. Dr. Buchibabu Vicharapu, PhD (IIT Bombay)
5. Dr. D. Chakradhar, PhD (NIT Warangal)
6. Dr. D Kesavan, PhD (IIT Madras)
7. Dr. Dinesh Setti, PhD (IIT Delhi)
8. Dr. Ganesh Natarajan, PhD (IISc Bangalore)
9. Dr. S Kanmani Subbu, PhD (IIT Kanpur)
10. Dr. Krishna Sesha Giri, PhD (IISc Bangalore)
11. Dr. K. V. N. Surendra, PhD (IISc Bangalore)
12. Dr. Pramod Kuntikana, PhD (IIT Bombay)
13. Dr. Pramod S Mehta, PhD (Loughborough University, UK)
14. Dr. Samarjeet Chanda, PhD (IIT Madras)
15. Dr. Santhakumar Mohan, PhD (IIT Madras)
16. Dr. Sovan Lal Das, PhD (Cornell University, USA)

The discipline of Mechanical Engineering offers a 4-year undergraduate B.Tech. Program; 2-year Masters' program and research (MS and PhD) programs. The undergraduate curriculum of the stream mainly integrates fundamentals of mechanical sciences & engineering along with electives concerning allied and general topics including professional ethics. M. Tech. at PG level is offered in Manufacturing and Materials Engineering emphasis on developing depth in both fundamental and applied aspects with inquisitiveness. The Mechanical Engineering stream has three broad sub-disciplines – thermo-fluids, design and manufacturing. Research in the thermo-fluids stream include experimental and numerical heat transfer and combustion, laser diagnostics, thermal management for batteries and computational fluid dynamics. Faculty in the field of solid mechanics and design carry out research related to fracture mechanics,

vibrations, robotics, granular mechanics and biophysics. Among the research areas in the manufacturing sub-stream are additive manufacturing, friction-stir welding and solid-state welding, tribology, super finishing and minimum quantity lubrication. Some of the current research projects include studies on soot modelling, studies of battery thermal management systems, modelling of adhesion in thin and soft structures, bio-inspired underwater vehicles, evaluation of cryogenic cooling for machining, rolling contact fatigue studies on bearing steels and micro electric discharge milling of metal matrix composites.

Research Areas

- **Solid Mechanics and Design**: Continuum Mechanics, Fracture Mechanics, Theoretical and Applied Mechanics, Contact Mechanics of Thin Structures, Lipid Bilayer Membrane, Robotics Motion Control, Mechanism Design and Analysis, Service and Field Robots, Mobile Robots and Manipulators, Rehabilitation and Assistive Robots, Underwater Vehicles and Manipulator Systems, Vibro-acoustics, Underwater acoustics, Acoustic metamaterials.
- **Materials Science and Manufacturing Engineering**: Ultra-precision Machining, Diamond Turning, Hybrid Machining, Deep-Hole Drilling, Non-Conventional Machining, Conventional Machining, Advanced Materials, Micro Manufacturing, Laser Surface Treatment, Additive Manufacturing and Composite Fabrication and Machining, Surface Engineering, Welding Technology, Process modeling of welding and metal additive manufacturing processes, Industrial Tribology, Grinding, Abrasive finishing Processes.
- **Thermo-Fluids**: Combustion/Propulsion Research, Engine Modelling/Control, Combustion and Laser Diagnostics, Combustion Modeling, Novel Laser and Optical Diagnostic Techniques, Computational Fluid Dynamics - Immersed Boundary Methods, Turbulence, Sports Aerodynamics and Mathematical Modelling, Experimental and Numerical Heat Transfer and Energy Systems, Heat and Mass Transfer, Inverse Problems in Thermal-Fluid Sciences, Interferometry, and Optimization, Renewable Energy, Experimental Fluid Mechanics and Heat Transfer, Thermal Management, Flow Metering.

Research Areas Available for Admission in July 2021

- Acoustics and Vibration
- Solid Mechanics, Fracture Mechanics
- Robotics and Control
- Conventinal and Non-Conventional Machining

- Additive Manufacturing
- Surface Engineering
- Welding
- Experimental heat transfer and fluid flow

Facilities

Combustion and laser diagnostics lab: The experimental facility consists of laser diagnostic equipment in addition to burners fabricated for studying flames in different configurations.
The lab is equipped with a high pressure compressor (45 bar), 1 m^3 air receiver, air-dryer with flow lines for delivery to the setups in the lab. Fuel supply from a cylinder bay is also available. Flow control is achieved using Alicat mass flow controllers (MFC) of various ranges. A high-capacity exhaust system is also in place for handling of product gases from combustion experiments.

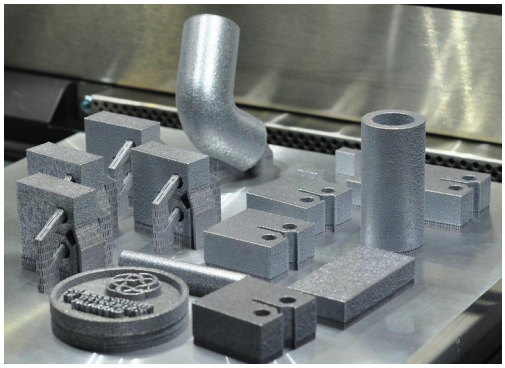
The laser diagnostic capabilities include a Q-smart NdYAG pump laser and a Sirah dye laser, with the accessories like energy monitor and collimator attached in line, to measure the output energy and to create a laser light sheet respectively. The PIV laser is a 200 mJ double cavity pulsed Nd:YAG laser of 532 nm output wavelength. The laser is synchronised using a LaVision PTU X. Fluorescence imaging is carried out using a CCD camera (Imager SX 6M) for intensifying the photon count. Image acquisition and processing is done through Davis 8.0. In addition an Andor 750 mm focal length spectrograph is also available for carrying out spectroscopic studies. A Hamamatsu PMT is employed to record image intensity. A He-Ne laser and Si Photodetectors are being procured for line-of-sight measurements. Optics like mirror, filters and optomechanical components like posts, lens holders etc are available.

The following techniques can be conducted with the existing equipment

1. Particle Image Velocimetry
2. Planar Laser Induced Fluorescence
3. Laser Induced Incandescence
4. Extinction measurements

A counterflow diffusion flame burner has been designed and fabricated with a contoured nozzle. The burner can generate a wide range of flames of different strain rates with varied fuels.

Manufacturing and Materials Engineering Laboratory: Manufacturing research laboratory has an advanced materials processing facility consisting of state-of-art metal additive manufacturing (AM) system, the method that relies on a digital data file being transmitted to a machine then builds the component. The technology helps us to make complex parts from various engineering materials with high standards of quality that are not possible using conventional manufacturing methods. Few other facilities available in this laboratory are Wire electric discharge machine, coordinate measuring machine, Stir casting setup, Compression molding machine, Polymer 3D printer, Laser marker machine, Modular Production System and Virtual Reality system. Materials testing laboratory is equipped with mechanical and materials characterization facilities to measure hardness, tensile strength, fatigue strength and bending strength of any engineering materials. Along with that, a twin disc rolling contact fatigue (RCF) tester and axial fatigue testing machine with the capacity of 100 kN servo-hydraulic frame are also available.



3D Metal additive manufacturing facility

4.8. Physics

The Faculty

1. Prof. P B Sunil Kumar, PhD (RRI, Bangalore)
2. Dr. Amit Kumar Pal, PhD (Bose Institute Kolkata)
3. Dr. Bibhu Ranjan Sarangi, PhD (RRI Bangalore)
4. Dr. Jayakumar Balakrishnan, PhD (National University of Singapore)
5. Dr. Kusum Dhochak, PhD (TIFR, Mumbai)
6. Dr. Prithvi Narayan P, PhD (TIFR, Mumbai)
7. Dr. Projjwal Banerjee, PhD (University of Minnesota, Minneapolis, USA)
8. Dr. Soham Manni, PhD (Georg-August-Universitat Gottingen Germany)
9. Dr. Uma Divakaran, PhD (IIT Kanpur)

10. Dr. Vishwas V, PhD (JNCASR Bangalore)
11. Dr. Moumita Nandi, PhD (SINP Kolkata), Inspire Faculty

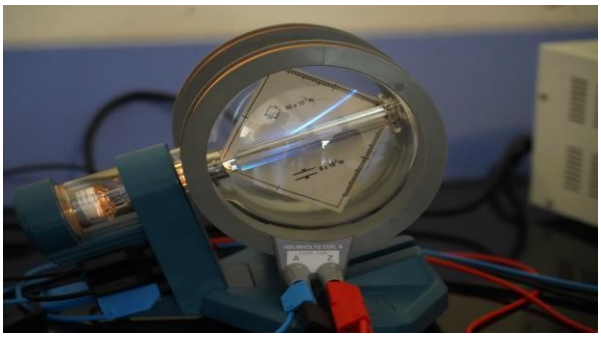
The Discipline of Physics, IIT Palakkad started functioning from August 2015, and has now grown into a vibrant part of the Institute with its creative and passionate teaching endeavours at the undergraduate and postgraduate level along with cutting-edge research components in the forefront of experimental and theoretical physics. There are currently 10 Faculty members, 1 Inspire Faculty, and 1 Post-Doctoral Researcher in the Discipline, engaged in various research projects in several topical and multidisciplinary areas. In July 2017, the discipline started its dedicated PhD program, and at present a total of 16 students are pursuing research. Besides its thriving research activities, the discipline also runs a two year M.Sc program in Physics, and supports in training young Engineering undergraduate students in basic sciences.

Research Areas

- Astrophysics
- Experimental Biophysics
- Experimental Condensed Matter Physics
- High Energy Physics and String Theory
- Statistical Physics
- Soft-Matter Physics
- Many-Body Physics
- Quantum Information Theory and Quantum Computation
- Non-Equilibrium Dynamics and Quantum Phase Transitions

Facilities

The discipline has at present a teaching Physics laboratory to cater the needs of undergraduate/ graduate students and is equipped with experimental setups that can boast of the latest technology. The M.Sc. Physics laboratories are categorized by different themes, namely, Mechanics, Electromagnetism, Thermal Physics, Atomic Physics and Spectroscopy, and Electronics and Instrumentation. The M.Sc. Physics laboratory houses state of the art experimental setups such as Eddy Current Pendulum, Thomson Tube, Michelson Interferometer, Nuclear Magnetic Resonance (NMR) Spectrometer, Electron Spin Resonance (ESR) Spectrometer, Liquid Nitrogen Cryostat, Scanning Tunneling Microscope, Epifluorescence microscope and Polarizing Microscope. Currently there are three technical staff in the Physics laboratory to manage experimental setups and assist students in experiments.



UG/ PG Lab of the discipline of Physics

4.9. Sustainability

The Faculty

Dr. Deepak Jaiswal, PhD (Pennsylvania State University, USA)

Research Areas

This is one of the youngest disciplines at IIT Palakkad and uses common facilities (high-performance computing, central instrumentation facility, etc.). At present, there are two main thrust areas: (1) climate change mitigation and adaptation, (2) environmental and human health.

Research Areas Available for Admission in July 2021

- Crop Modeling
- Bioenergy

Facilities

We use a computational model (BioCro) to study the impact of climate change on plants, high-performance computing resources, and various soil and climate dataset to address exciting and socially relevant issues. We also expect to establish facilities for field and experimental work shortly.

4.10. Intelligent Collaborative Systems (ICS)

Applicants with exceptional academic record meeting the IIT Palakkad Ph. D. eligibility criteria are encouraged to apply for Ph.D admission in TIH-ICS at IIT Palakkad under Regular Category. Such an applicant, if selected, has to be a full-time scholar at IIT Palakkad and will receive a special Ph.D. fellowship from TIH-ICS. The various sub-area within ICS and their specific requirements are presented in table below.

Research Area	Eligibility Criteria	Additional Criteria
Distributed and interconnected systems	Bachelors/Master in EE/CSE/ECE and equivalent disciplines	Should have a good math aptitude OR Strong programming skills, preferably contributed to large open source projects, and Hands-on experience in Cloud Technologies.
Design and control of high altitude gliders	Masters in control systems, robotics, aerospace and equivalent disciplines OR M.Sc. in Physics	Good aptitude in nonlinear dynamics and differential equations.
Networked control systems	Bachelors in EE/IN/ECE and Masters in control systems and equivalent disciplines	Should have a good math aptitude. Knowledge of probability and random processes is desirable but not necessary.
Design and control of aerial manipulators for load transportation	Masters in control systems, control and robotics, aerospace and equivalent disciplines	Good aptitude in nonlinear control and differential equations.
Machine learning	Bachelors/Master in CSE/IT and equivalent disciplines	Should have a good math aptitude and be proficient in programming.
VLSI architecture design	Bachelors in EE/ECE/CSE and Masters in VLSI Design and equivalent disciplines	Should have a good math aptitude. Working experience on FPGA design/prototyping is desirable.
Embedded systems; software/hardware	Bachelors / Master in CSE/EE/ECE and equivalent disciplines	Should have an experience with embedded system design process and strong programming skills.
Computer vision, AI, embedded systems	Bachelors/Masters in CSE/EE/ECE or equivalent disciplines	Should have strong programming skills. Working experience in computer vision will have an added advantage.

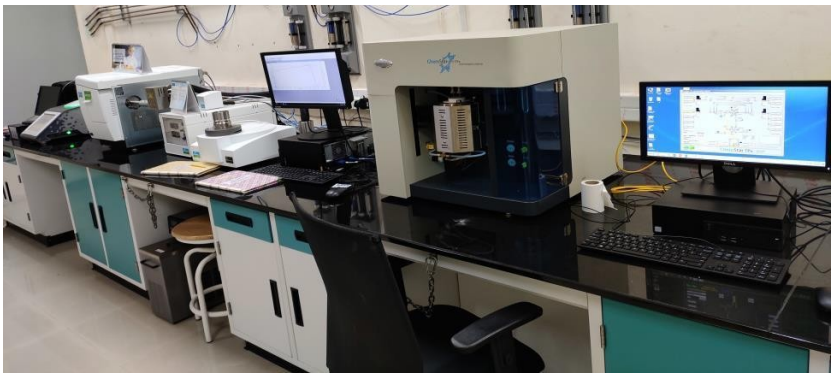
Robot Dynamics and Control **Service and Field Robotics**	Bachelors in ME/EE/IN/ECE and Masters in control systems, control and robotics, design, and equivalent disciplines	Should have a good math aptitude. Knowledge of Robot dynamics and ROS are desirable but not necessary.

5. Central Research Facilities

5.1. Central Instrumentation Facility (CIF)

Advancements in technology are closely tied to success in the research and development of new molecules and materials. The journey to success becomes all the more exciting and challenging when the technology meets the constraints of sustainability. One of the thrust areas of research in IIT Palakkad is to develop new functional molecules, assemble them into materials and fabricate nano-scale machines using them. In 2019-2020, IIT Palakkad established the Central Instrumentation Facility (CIF) and the Central Micro-Nano Fabrication Facility (CMFF) to support high- quality research in design and development of functional molecules, materials and devices. At an expenditure of Rs 23 crores, these facilities maintain a high operational standard of sophisticated equipment. Functionally, the facilities in CIF & CMFF are grouped under the themes of Synthesis, Characterization and Fabrication. CIF houses sophisticated equipment for synthesis and characterization, while CMFF maintains a clean room and other facilities needed for the fabrication of devices at the micro and nanoscale.

The CIF houses a range of sophisticated analytical equipment capable of studying the physical, chemical, electrical, mechanical and magnetic properties of molecules as well as materials. The equipment are installed and operated across the Ahalia and Nila campus presently but will eventually be relocated to a dedicated Research Complex at the permanent campus of the Institute. Some of the equipment in CIF are: Semiconductor Parameter Analyser, Vector Network Analyzer, Signal Analyzer, Analog, Microwave Signal Generator, Wire Bonder, Mixed signal digital storage oscilloscope, 64- channel Electroencephalograph (EEG) Data Acquisition System, High Performance Liquid Chromatography, Liquid Chromatography Mass Spectroscopy, Nuclear Magnetic Resonance Spectrometer, Raman spectrophotometer, X-ray diffractometer, Scanning Electron Microscope, Infrared spectrophotometer.



Sophisticated equipment of CIF in Ahalia Campus.

5.2. Central Micro-Nano Fabrication Facility (CMFF)

The Central Micro-Nano Fabrication Facility (CMFF) of IIT Palakkad houses equipment and facilities capable of performing wet-chemical processes, thin film deposition, and lithography/patterning. The facility will be established in a clean space spanning about 50 m2, with two areas: one which is class 10000 (about 12 m2), and another that is class 1 lakh.

Broadly, research is proposed in the areas including (but not limited to): (i) Design, fabrication and characterization of 2D spin devices (including GMR devices), heterostructures of 2D materials and perovskites; (ii) Design, fabrication and characterization of CMOS-compatible photodetectors; (iii) Fabrication and characterization of RRAMS, non-linear selector devices for RRAMS, and one-time programmable memories; (iv) 2D material-based MEMS sensors, and new strategies for design of MEMS-based structures that incorporate negative capacitance; (v) Design and characterization of GaN-based mmwave devices and circuits; (vi) Fabrication and characterization of Perovskite solar cells.

Central Micro-Nano Fabrication Facility

5.3. Central Facility for Materials and Manufacturing Engineering (CFMM)

CFMM houses advanced materials processing, testing and manufacturing processing facilities to support basic and applied research activities in various streams of engineering. It is an essential platform not only to compete intellectually with the rest of the world but also enables us to make ingenuine contributions relevant to our country in the growing field of materials processing, manufacturing of engineering components and products. This supports the research on materials processing that includes development of alloys and composites, manufacturing of components includes turbine & compressor parts, aerofoils, medical implants, actuators, medical scaffolds, machine tools, energy components, etc., and manufacturing of products includes robots, devices, unconventional machines, energy efficient vehicles, etc.

5.4. High Performance Computing Cluster

The Chandra High performance computing cluster (HPC) provides a powerful computing platform for research in engineering and physical sciences. This system has been operational since June 2017. The HPC consists of 64 compute nodes, each with a dual 12-core Intel processor. Each core runs at 2.2 GHz and has 4 GB of RAM per core. The HPC is one of the first systems in India to use a 100 Gbps high-speed Omni Path interconnect from Intel. The system provides about 50 TFlops of computing power. Chandra also accesses 100 TB of disk space setup as a parallel file system running Lustre from Intel.

The HPC is used by faculty, research staff and students at IIT Palakkad to investigate complex research problems in science and engineering. Some of the problems currently being studied are:

- Understanding and designing materials with novel physical properties by performing atomistic quantum mechanical simulations.
- Design of nanoscale transistors for next generation electronic applications.
- Design of novel bio-molecules with applications in medicine.
- Design of large structures such as bridges and buildings.
- Performing computational fluid dynamic simulations.
- Understanding the process of heat transfer in complex systems such as engines.
- Solving non-equilibrium dynamics in quantum Hamiltonians.

6. M.S. and Ph.D. admissions

6.1. Application

A candidate can apply to more than one department. The maximum number of departments to which he/she can apply will be two.

6.2. Financial Assistance

Assistance will be as per MHRD norms. Fulltime Scholars admitted to M.S. and Ph.D. program are eligible for the Half-time Teaching/Research Assistantship (HTRA) for which:

1. They should work for 8 hours per week for the Institute to earn this assistantship. The work would normally involve assistance in teaching/research, and will be assigned by the Institute.
2. Renewal of assistantship every semester will be contingent on enrolment, satisfactory progress in research work and good performance during the preceding semester in the discharge of responsibility as teaching/ research assistant.

Other scholarships like UGC- JRF, CSIR-JRF, ICMR, ICAR & AICTE etc. may also be available for those who have qualified for these schemes and get admission and the amount of fellowship will be as per the norms of the funding agency.

6.3. Minimum eligibility

6.3.1. M.S.

The minimum educational qualifications for admission to the M.S. by research degree are as follows:

1. Candidates with a Bachelor's degree in Engineering/Technology/ Master's degree in Science with valid GATE score.
2. Candidates having Associate Membership of the following professional bodies are also eligible for admission to the M.S. program of their parent discipline provided they have a valid GATE score and have passed both part A and part B of the Membership examinations with a good academic record:
    a. The Institution of Engineers (India) (Civil, Mechanical, Electrical and Electronics, Electronics and Communications)
    b. The Aeronautical society of India

c. The Indian Institute of Metals
d. The Indian Institute of Chemical Engineers
e. The Institute of Electronics and Tele-communication Engineering
f. Other professional bodies approved by the Senate from time to time.

Engineering graduates from IITs and other Centrally Funded Technical Institutes (CFTI) with a minimum CGPA of 8/10 (7.5/10 for OBC-NCL and 7/10 for SC/ST/PwD candidates) are eligible for seeking admission, without GATE score, to the M.S. Program and they can be offered HTRA, if selected.

6.3.2. Ph.D.

The minimum educational qualifications for admission to the Ph.D. program of the Institute are as follows:

- **Ph.D. in Engineering**
  - **a.** Candidates with a Master's degree in Engineering/Technology with a good academic record or a Master's degree by Research in Engineering/Technology with a good academic record.
  - **b.** Candidates with Master's degree in Sciences with a good academic record and of exceptional merit are eligible for the relevant Engineering discipline. They should have a valid GATE score or UGC/CSIR-NET/NBHM or equivalent qualification in the relevant area tenable for the year of registration.
  - **c.** Candidates who have qualified for the award of Bachelor's degree in Engineering/Technology from a Centrally Funded Technical Institute (CFTI) with an exceptionally good academic record in an eligible discipline will be considered for direct admission to Ph.D. provided he/she has a minimum CGPA of 8/10 (7.5/10 for OBC-NCL and 7/10 for SC/ST/PwD candidates).
- **Ph.D. in Sciences**
  - **a.** Master's degree in Sciences with a good academic record and having a valid GATE score or UGC/CSIR-NET/NBHM or equivalent qualification tenable for the current year in the relevant area. Master's degree holders in Engineering/Technology are also eligible.
  - **b.** Candidates who have qualified for the award of Bachelor's degree in Engineering/ Technology from a Centrally Funded Technical Institute (CFTI, see Appendix 4 for a list of CFTIs that would be used for admission purposes) with an exceptionally good academic record in an eligible discipline will be

considered for direct admission to Ph.D. in Sciences provided he/she has a minimum CGPA of 8/10 (7.5/10 for OBC-NCL and 7/10 for SC/ST/PwD candidates).

- **Ph.D. in Humanities and Social Sciences**
  - **a.** Master's degree in an eligible discipline with first class or equivalent (in terms of grades, etc.) and having a valid UGC-NET qualification/GATE score tenable for the current year in the relevant area.

6.3.3. Institute staff members or Research Scholars under External Registration

For M.S./Ph.D. Research Scholars in these categories, the minimum educational qualifications are the same as prescribed for full time research scholars. However, valid GATE score or CSIR / UGC JRF or Lectureship / NBHM or equivalent qualification as applicable for regular full time research scholars shall not be required in these cases.

6.4. Selection Procedure

Eligible candidates possessing the minimum educational qualifications (as given in section 6.3) and satisfying additional and stiffer criteria set from time to time, will be called for an interview and/or test by the Selection Committee.

If you are shortlisted, you will be required to submit a statement of purpose (SOP) in support of your application in about 500 words in pdf format on or before May 30, 2021. If you do not submit the SOP, it will be assumed that you are not interested in the admission, and your application will not be considered further.

For candidates who have obtained a master's degree 10 years earlier as on the last date prescribed for receipt of the completed application, a departmental test will be conducted.

The applications of foreign nationals may be considered without a personal interview / test.
Based on the academic record and the performance of the candidates in the interview and/or test, the Selection Committee will recommend to the Chairman, Senate the names of candidates found suitable for admission.

Please note that SC/ST candidates can apply to all available research areas of the discipline.

6.5. Interview

Due to the serious situation that exists in the country which makes travelling impossible, interview will be conducted through only video conferencing. There could be multiple rounds of interviews, and in-person interviews, if necessary.

6.6. Reservation of Seats

Reservations are applicable to SC/ST/OBC-NCL/EWS/PwD candidates as per Govt. of India rules.

6.7. Verification of certificates

Candidates joining M.S./Ph.D. program in July-December/December-June session have to submit their original mark/grade sheets along with provisional certificates at the time of admission. They should also produce their required degree certificate for having passed the qualifying examination on or before 31st October for July admission / 31st March for December admission.

The candidate should submit the following original documents for verification at the time of interview/admission:

1. Printed copy of application submitted.
2. Offer of admission.
3. Aadhar No. & PAN No.
4. First page of SSLC/SSC/Matriculation certificate
5. Degree certificate/Provisional/Course completion certificate / Grade Cards/Mark sheets of all semesters beginning from first degree towards proof of qualification.
6. Original GATE Score Card/UGC-JRF/NET/CSIR-JRF/DAE-JEST or other fellowship award letter.
7. Copy of GATE score or UGC - JRF/NET/CSIR/ DAE-JEST or other fellowship award.
8. Project coordinators certificate in the prescribed format and a copy of project appointment letter in the case of Project Associate if already appointed.
9. SC/ST/OBC-NCL community certificate for the candidate belonging to SC/ST/ OBC-NCL category issued by the respective State Government. OBC-NCL scholars have to bring a Non-creamy layer community certificate valid at the time of admission.
10. Certificate proving EWS category.
11. Authorized Doctors Certificate with disability descriptions in the case of Person with Disabled (PwD) candidates.

12. Relieving order/Resignation acceptance letter from the employer in the case of full time candidates, if employed except candidates selected under IITPKD Staff scheme.

In addition to the above documents, the External Registration candidates need to produce the following from their employer:

1. Research Coordinator/Co-guide's Consent letter
2. Copy of Research Coordinator's Degree certificate
3. NoC/Relief from the present employer

The above have to be submitted in the prescribed format, given in the Appendices at the end of the Brochure.

7. Fees, Deposits and Refund Policy

7.1 Fees and Deposits

S. No.	Particulars	MS	PhD
A. ONE TIME FEES			
1	Admission Fee	300	300
2	Grade Card / Thesis Fee	500	1000
3	Provisional Certificate	150	150
4	Alumni Life Membership Fee	1500	1500
5	Modernization Fee	300	300
6	Student Welfare Fund	700	700
7	Publication Fee	250	250
8	Institute Caution Deposit	1000	1000
9	Library Caution Deposit	1000	1000
	Sub-Total	5700	6200
B. INSTITUTE FEES			
1	Tuition fee #	2500	2500
2	Examination fee	500	500
3	Registration - Enrollment fee	300	300
4	Hostel Seat Rent *	6000	6000
5	Electricity, Water & SWD Charges *	900	900
	Sub-Total (for day scholars)	3300	3300
	Sub-Total (for hostellers)	10200	10200
C. ONE-TIME HOSTEL FEES			
1	Hostel Caution Deposit *	3500	3500

D. STUDENTS' SECTOR FEES & ADVANCE DINING CHARGES			
1	Medical insurance	300	300
2	Wellness fees	400	400
3	Gymkhana fee	1300	1300
4	Establishment A	5000	5000
5	Hostel Admission Fee *	200	200
6	Establishment B *	1500	1500
7	Advance Dining Charges *	27000	27000
	Sub-Total (for day-scholars)	7000	7000
	Sub-Total (for hostellers)	35700	35700

**** For hostellers only***
 # Tuition fee is waived for SC/ST students

Hostel rooms are allotted depending on availability on sharing basis. If you wish to be a day scholar, you should register your name in the Office of the Dean Students and obtain a day scholar certificate immediately after admission.

7.2 Refund Policy

If a candidate withdraws his/her admission before the official joining date, the amount paid by him/her will be refunded after deducting the administrative charge of Rs 2000/-. Once the student is admitted, then only the deposit part will be refunded.

8. Institute Library

As the informatics center of the Institute, the Central Library provides an enjoyable learning experience with a carefully developed collection of books, journals, standards, magazines and newspapers. The library also stores a collection of audio-visual materials such as CD-ROM, scientific kits etc. The library opened its doors to the students, faculty and staff in August 2015 with a collection of 700 printed books which has grown more than 6000 printed barcodes and RFID tagged books (textbooks, reference, popular sciences and literature) in the past six years. Based on the needs and requirements of researchers, the library has subscribed to a number of electronic journals for its users. The library also has the support of national consortium E-Shodh Sindhu (INFLIBNET) to fulfill maximum journal requirements. The operations of the library are fully computerized and enabled with the RFID system for fast transactions, for ease of access as well as for the security of the library. The RFID based kiosk provides self-check-in and self-check-out of books. Library is under a 24x7 CCTV surveillance system for security. The library is also enabled with Wi-Fi and LAN facility for unlimited high-speed internet access. Online

facilities of the library are available 24x7x365 days for its registered users. Users can renew, reserve books through Online Public Access Catalog (OPAC) at any time. The library also renders services such as Reference and Consultation as well as updates the users with the Current Awareness Services. The users of Central Library of IIT Palakkad are also registered with the National Digital Library sponsored by MHRD and coordinated by IIT Kharagpur.

9. Career Development Centre

- The Career Development Center (CDC) of IIT Palakkad employs significant efforts to refine the capabilities, personality and work readiness of students with the help of placement training and career preparation workshops. In order to facilitate better career opportunities, CDC constantly engages with industry through internships, industry visits, Industry-Academia conclave and also by hosting industry experts at the campus. A combination of rigorous yet sufficiently flexible curriculum prepares the students for the challenges in a competitive industrial environment.
- IIT Palakkad witnessed a perfect culmination of the campus placement year after year in which several offers were received from coveted MNC's with excellent profiles, as desired by the students. The CDC at IIT Palakkad dominated the peer IITs on account of the highest percentage of job offers received by students. In addition to these, several PSUs visit the campus for recruitment each year.
- Some notable companies which offered employment and internship are Google, Sprinklr, Cargill, Adobe, Amazon, Arista networks, Mathworks, Texas Instruments, Honeywell, Jio Platform Limited (Reliance), McKinsey, Target Corp., Signalchip Innovations, L&T Group, TCS, Syngene International Limited etc. Key PSUs/Government agencies which offered positions include ITI Limited, FCRI, BEML, Ordnance factory etc.
- The statistics given below gives a quick glimpse of the campus placement.

Academic Year	2018-2019	2019-2020	2020-2021 (till 05 April 2021)
No. of Companies Visited	62	70	70
No. of Offers	64	87	98
No. of PPO's	5	15	5
Highest CTC INR (in Lakhs)	16.75	21.34	31.5
Average CTC INR (in Lakhs)	8.44	9.98	11.45

- The centre is functional under a Professor In-Charge and the Training and Placement officer (TPO) dedicated to the endeavour of grooming the students.

10. Hostel facilities

IIT Palakkad has four hostels each in its Temporary campus and three hostels in Nila campus in which the UG, PG and Research students are accommodated. Most of the rooms in the hostels have attached washrooms. A common mess serves food to the students in the respective dining halls in the two campuses. The mess halls are provided with TV with DTH connection. All hostels are equipped with heavy duty washing machines and water dispensers with RO purifiers.

11. MITRA: Student Wellness Centre

Anti-ragging measures: The motto of the Institute is zero tolerance to ragging. The students and parents are sensitized to this aspect through written documents and posters. A structured mechanism has been put in place to monitor ragging related issues and meet out the most stringent punishment to the wrong-doers, and enforce the anti-ragging regulations in letter and spirit.

Counselling services: A professional counselling service has been set up in order to ensure that the students receive help when they face social/emotional issues that require a professional approach. The services of two resident counsellors who are experienced clinical psychologists, one male and one female, are available to the students all the time. Apart from this, online counselling services are also made available to the students.

Life skill classes: Students are given a course in life skills to help them cope with stress, improve communication skills and manage conflicting objectives. This outbound training, conducted by experts, provides the students with a platform to discover new friends and develop new bonds. It enables them to come out of their shells and mingle with others. They are also taught the art of forming well-knit teams on whom they can lean when in need, without hesitation. This course is mainly aimed at developing interpersonal relationships, building confidence, and making the students comfortable while facing the public, interview boards and so on.

Health care: The students are covered by a comprehensive medical insurance scheme for a nominal yearly subscription. IIT Palakkad has MOUs with Ahalia Diabetes Hospital, Athani

Hospital, Malabar Hospital, Manomitra and Thangam Hospital for cashless medical attention. Students can also go to the hospitals of the Ahalia Foundation for treatment as outpatients.

Sports facilities: IIT Palakkad is continuously improving its sports and games facilities. Good facilities exist for football, volleyball, basketball, table tennis and cricket. There is a resident sports coach in the campus, who trains students in different games, physical fitness, weight lifting, etc. and takes care of the Institute gym. Other coaches are hired as and when needed.

APPENDICES

Appendix – 1

[To be submitted at the time ofAdmission]

Admission to Ph.D./M.S. programme under External RegistrationScheme at IIT Palakkad

Proforma for Relieving Certificate

Shri/Smt/Kumari employed as…… …….. ……. is granted leave for 20 weeks (140 days) commencing from…… to …… and is relieved of his/her duties with effect from…… to ……..… to enable him/her to pursue M.S./Ph.D. Research programme under External Registration Scheme in August /January semester at the Indian Institute of Technology Palakkad, Kerala – 678557 as per their offer of admission letter No…….Dated ……..

Date :

Signature of the Officer with name and address of the Organisation

Office Seal

Appendix – 2

[To be submitted at the time of Interview]

Certificate from the Employing Organisation for external registration of their employees in Ph.D./M.S. programme of IIT Palakkad

The application of…..……..……working as…..... .....in…..... since …..…….. is herewith recommended and forwarded for admission under External Registration Scheme of the Indian Institute of Technology Palakkad for Ph.D./M.S. Research programme in the Department of ……..……

1. This organization has adequate facilities for carrying out the research indicated by the applicant and if he/she is selected, these will be made available to him/her till the completion of the programme.

2. The applicant will be deputed/given leave for the duration of his/her residence period at IIT Palakkad.

3. Facilities will be made available to the Co-guide to supervise the work of the applicant and to attend the meetings at IIT Palakkad when necessary.

4. Till the completion of his/her research programme, the applicant will not ordinarily be transferred to another unit or place which may impede his/her work under the scheme.

   If such a transfer is necessary, IIT Palakkad will be informed within a month of such transfer. We understand that continuing of registration will depend on IIT‟s decision in this regard, taking into account all the relevant factors.

5. We note that the facilities of the Institute will be made available to him/her for carrying out the work and that there will be no separate charge (other than tuition fees payable by the candidate) for the use of laboratory, library and other facilities.

6. No part of the work carried out in fulfilment of the Research programme will be utilized commercially or for applying for a Patent without the approval of Indian Institute of Technology Palakkad and other than on terms mutually agreed to by IIT Palakkad and this organization.

Date: Signature of the Officer :

Name and Designation:

Postal address of the Organization :

Seal of the organization/Institution

Appendix - 3

Particulars of Research Co-ordinator for students under External Registration Scheme

In addition to being in a position to ensure technical and logistic support to the scholar in his/her research work in the organization, the Research Co-ordinator must have a Ph.D. degree and adequate professional experience in the relevant field. He/She will be an invitee to the Doctoral Committee/General Test Committee meetings at IIT Palakkad.

Details of the Research Co-ordinator

1. Name (in block letters) :

2. Designation :

3. Academic qualifications :

4. Membership of Professional Societies :

(Please attach a detailed CV, with qualifications, work experience, and list of publications of the Resesarch Co-ordinator) Certificate from the Research Co-ordinator

This is to state that in the event of Mr. /Ms._____ of this organization being selected for Ph.D. / M.S. programme in the Department of under the External Registration Scheme of IIT Palakkad, I agree to be the Research Co-ordinator and I shall extend all possible facilities to enable him/her to carry out his/her research towards the completion of the programme.

Date: Signature of Research Co-ordinator

Appendix - 4

LIST OF CFTI INSTITUTIONS

1. INDIAN INSTITUTES OF TECHNOLOGY (All IITs)
2. INDIAN INSTITUTES OF MANAGEMENT (All IIMs)
3. INDIAN INSTITUTE OF SCIENCE (IISc), BANGALORE
4. INDIAN INSTITUTES OF SCIENCE EDUCATION AND RESEARCH (IISERs)
5. INDIAN INSTITUTES OF INFORMATION TECHNOLOGY (IIITs):
    a. Indian Institute of Information Technology Allahabad
    b. Atal Bihari Vajpayee - Indian Institute of Information Technology Gwalior-(ABVIIITM)
    c. Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design and Manufacturing (IIITDM) Jabalpur
    d. Indian Institute of Information Technology, Design and Manufacturing (IITD&M) Kanchipuram.
6. NATIONAL INSTITUTES OF TECHNICAL TEACHERS "TRAINING AND RESEARCH (NITTTRs)
7. NATIONAL INSTITUTES OF TECHNOLOGY (All NITs)
8. OTHER CENTRAL INSTITUTIONS
    a. Indian School of Mines University (ISMU), Dhanbad
    b. National Institute of Industrial Engg. (NITIE), Mumbai
    c. National Institute of Foundry & Forge Technology (NIFFT), Ranchi D. School of Planning & Architecture (SPA), New Delhi
    d. School of Planning & Architecture (SPA), Bhopal
    e. School of Planning & Architecture (SPA), Vijayawada
    f. Central Institute of Technology, Kokrajhar
    g. Sant Longowal Institute of Engineering & Technology (SLIET), Longowal, Punjab
    h. North Eastern Regional Institute of Science & Technology (NERIST), Itanagar

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IIT PALAKKAD

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Nurturing Minds For a Better World