Post Graduate Admission 2025 - 2026

Information Brochure

Journey of A Decade

IITPKD | 2015 - 2025

IIT PALAKKAD

CONTENTS

1. THE INSTITUTE

Main Entrance to the Nila campus

The Nila campus

Established in 2015, the Indian Institute of Technology, Palakkad is dedicated to creating an environment that enables students and faculty to engage in the pursuit of knowledge, to dream, think, and innovate thereby becoming change agents for a better world. Having begun with just 120 students in July 2015, IIT Palakkad has since grown into an establishment that is about a thousand students strong and with the best manpower in key

positions. The Institute recognises collective growth, in collaboration with industry and other academic institutions, as the need of the time and emphasises blue-sky research and directed research as two essential pillars of technology development. The Institute embraces a vision to be a leader in cross-disciplinary inquiries, and to contribute to the potential that India's demographic dividend represents for the country and the world, which is embodied in the motto of the institute ‘Nurturing minds for a better world’.

Aerial view of the Nila Campus

Located in the historic and vibrant region of Palakkad, known as the granary of Kerala, our institute is perfectly situated as the gateway to the state from the East, Palakkad Gap in the Western Ghats. Surrounded by rich traditions, significant historical events, and its sylvan surroundings, especially the Silent Valley rain forests and ubiquitous palmyra trees, Palakkad provides an inspiring backdrop for academic pursuits.

IIT Palakkad completed its transition to the permanent campus, Nila/ Sahyadri sector located at the scenic foothills of the Sahyadri mountain range in 2023. Operation on the Nila campus began in 2019. Nila consists of an academic space, named Samgatha, and a laboratory complex, known as Manogatha. Additionally, Nila houses essential facilities such as the Institute Clinic, Amenity Center, Csquare Innovation lab, and Air Quality weather station. Accommodations are conveniently available at Brindavani and Tilang hostels of Nila campus.

The Sahyadri campus sprawls across a 504-acre opposite to the Nila campus. Sahyadri consists of a series of facilities that facilitate academic, administration, and research activities.

The academic block named 'Saraswati' in the Sahyadri campus features a classroom Complex with a capacity of around 2000 students, a Central Fabrication Facility, a Heavy Machinery Lab, a Research Complex, and a large Infrastructure Testing lab. It is also equipped with advanced studio classrooms that facilitate multi-camera recording, lightboard recording, chroma-keying, live-streaming, and web-based video conferencing and editing; and a digitalized Central Library with about 8600+ printed in addition to a large number of digital resources, are already accessible to the teaching and student fraternity.

Saraswati Block, Sahyadri Campus

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It also encompasses an administrative block, the APJ Abdul Kalam Block, the C06 Classroom cum Laboratory Complex, and the Sangraha block featuring four precast buildings. Additionally, the campus houses cutting-edge laboratories and centres like Smart AgriTech centre for Advanced Research and Development, Global Sanitation Centre of Excellence lab (GSCOE), Centre for Robotics and Control, Centre for Renewable Energy, and Central Instrumentation Facility (CIF). Additionally, the campus is equipped with two hostels, namely Malhar and Saveri, as well as a dining hall called Kedaram.

Located just 14 kilometers from the Palakkad Railway Junction and approximately 60 kilometers from the Coimbatore International Airport, our institute offers excellent connectivity for students and visitors alike. IIT Palakkad is entering a new phase of expansion and creativity, thanks to its highly skilled professors, accomplished students in academics and extracurriculars, dedicated staff, and advanced research facilities.

2. ABOUT THE POST-GRADUATE PROGRAMS

2.1 M.Tech Programs

The Four-semester M.Tech Programs are offered in ten specialisations at the institute. They are following a choice based curriculum and provide a student with a wide choice of courses. The curricula are drafted carefully to provide the students with realistic Engineering and Technological exposure with a strong theoretical foundation. Each program comprises several core and elective courses and project work. The ten M.Tech Programs for the academic year 2025-26 and the minimum educational qualifications are given in the Table-1.

Table-1: Minimum Educational Qualifications for the M.Tech Programs

Program	**Minimum Educational Qualifications**
Computing and Mathematics	• To be eligible for the regular category of admission, candidates must possess ◦ a valid GATE score in **CS/MA** and ◦ either a four-year bachelor's degree in STEM (Sciences/ Technology/ Engineering/Mathematics) or a master's degree in Sciences / Mathematics.

	• To be eligible for other categories of admission where a GATE score is not mandatory as per the institute regulations (such as sponsored category, CFTI degree holders etc.), candidates must possess one of the following. ◦ a four-year bachelor's degree in Engineering/Technology in Computer Science and Engineering / Information Technology ◦ a four-year bachelor's degree with Mathematics as a major ◦ a master's degree in Mathematics
Data Science	• 4-year undergraduate degree (BE, B.Tech, or BS) in any discipline or M.Sc in Data Science/ Artificial Intelligence/ Machine Learning/ Mathematics/ Statistics/ Applied Mathematics/ Physics, along with GATE qualification in **DA/ CS/ EC/ EE**
Geotechnical Engineering	• UG degree in Civil Engineering • GATE qualification in **CE** for HTTA
Manufacturing and Materials Engineering	• UG degree in Mechanical Engineering/ Production Engineering/ Manufacturing Engineering/ Metallurgical & Materials Engineering/ Metallurgical Engineering/ Manufacturing Technology/ Industrial & Production Engineering/ Material Science Engineering/ Materials Engineering. • GATE qualification in **ME/ PI/ MT** for HTTA

Power Electronics and Power Systems	• UG degree in Electrical Engineering / Instrumentation Engineering / Electrical and Electronics Engineering • GATE qualification in **EE** for HTTA
System-on-Chip Design	• B.Tech/BE in one of the following branches: Electrical Engineering/ Electronics Engineering/ Electronics and Communication Engineering/ Instrumentation Engineering/ Instrumentation and Control Engineering/Telecommunication Engineering/ Electronics and Telecommunication Engineering/ Electrical and Electronics Engineering/ Electronics and Instrumentation Engineering/ Computer Engineering and Information Technology/ Computer Science and Engineering/ Computer Engineering/ Computer Science and System Engineering/ Electrical Engineering and Computer Science/ Electronics & Computer Engineering/ Information and Communication Technology/ Information Science and Engineering/ Computer Science/ Electronic Instrumentation and Control Engineering/ Information Technology • Valid GATE Score (in **EE/ EC/ IN/ CS**).
Structural Engineering	• UG degree in Civil Engineering • GATE qualification in **CE** for HTTA
Water Resources Engineering	• UG degree in Civil Engineering/Agricultural Engineering • GATE qualification in **CE / AG** for HTTA

Design and Automation	• UG degree in Mechanical Engineering/Civil Engineering/Aerospace Engineering/Production Engineering/Industrial Engineering/Manufacturing Engineering/Automobile Engineering • GATE qualification in **ME/AE/XE-D** for HTTA
Thermofluids Engineering	• UG degree in Mechanical Engineering/Aerospace Engineering/Energy Engineering/Automobile Engineering • GATE qualification in **ME/AE/XE-B/XE-E** for HTTA

Candidates must be Indian nationals. Candidates should have valid GATE scores (Qualified in GATE 2025/2024/2023).

2.2 M.Sc Programs

The postgraduate program of M.Sc in the disciplines of Chemistry, Mathematics, and Physics, is intended to take the students to a higher and specialised realm in the respective disciplines. M.Sc at IIT Palakkad is a Four-semester program. The minimum educational qualifications for admission to the M.Sc programs of IIT Palakkad are given in the Table-2.

Table-2: Minimum Educational Qualifications for the M.Sc Programs

Program	**Minimum Educational Qualifications**
Chemistry	• JAM (Joint Admission test for Masters) qualified in Chemistry (CY) • No restrictions at 10+2 level • Bachelor's degree

Mathematics	• JAM qualified in Mathematics (MA) or Mathematical Statistics (MS) • No restrictions at 10+2 level • Bachelor's degree (with at least four Mathematics courses as a part of the bachelor's degree program)
Physics	• JAM (Joint Admission test for Masters) qualified in Physics (PY) • No restrictions at 10+2 level • Bachelor's degree

2.3 Half-Time Teaching Assistantship (HTTA) for the students (of Indian origin only) admitted to the M.Tech programs

Financial assistance in the form of a Half-Time Teaching Assistantship (HTTA) at the rate of Rs.12,400/- (Rupees Twelve Thousand Four Hundred Only) per month, which is tenable for a maximum period of 24 months, will be awarded to the students of Indian National joining the M.Tech programs, as per the extant rules of the institute.

The student should have a valid GATE score at the time of admission or have a B.Tech degree from an IIT with a CGPA of at least 8.0 (on a scale of 10).

The candidates admitted **under the Category-A of Section 3.1 ONLY** are eligible for HTTA. Such students are required to assist with the academic and curricular activities of the institute for at least eight hours per week. These activities could be related to activities such as laboratory demonstrations, tutorials, evaluations of assignments, test papers, seminars, research projects, etc.

HTTA is tenable for a maximum period of 24 months. Students availing HTTA are not entitled to avail any other scholarship/stipend during the period.

2.4 Scholarships and financial assistance for the students (of Indian origin only) admitted to the M.Sc programs

The institute facilitates Scholarships through the National Scholarship Portal (NSP - https://nsp.gov.in/), for the students admitted to the M.Sc programs. For more details on the scholarships and financial assistance, please visit https://iitpkd.ac.in/scholarships-and-financial-assistance

2.5 Reservation of Seats

Reservation of seats for the Indian Nationals under the prescribed categories, SC/ ST/ OBC (Non-Creamy layer), PwD (Persons with Disability) and Economically Weaker Section (EWS) of the General Category, is followed as per the extant rules of the Government of India.

3. ADMISSION TO THE M.Tech PROGRAMS

3.1 Who can apply?

A. REGULAR CANDIDATES

Candidates qualified in GATE 2025 / 2024 / 2023 and satisfying one or more of the qualifications given in Table-1. The candidates from the following categories are eligible to apply.

1. B.Tech graduates from IITs having a CGPA of 8.0 or above (on scale of 10) are also eligible to apply for M.Tech programs as a regular candidate.
2. Bachelor's degree** in Engineering /Technology from educational Institutions approved by AICTE/ Government of India.
3. Degrees obtained through Distance Education/ correspondence mode for the qualifying degree.
4. Associate Membership holders of professional bodies for admission into their parent disciplines.

The Institute reserves the right to conduct a suitability test/ an interview for screening in the cases under the categories (2) and (3) above.

The candidates who are yet to appear or have appeared in the final examination for the qualifying degree specified in [(1), (2) or (3)] and whose results are likely to be declared by the third week of July 2025 are only eligible to apply.

** If the degree is issued by a university/institution in countries other than India, the same must be recognized by Association of Indian Universities (AIU)/ Commonwealth Universities/ International Association of Universities (IAU), as equivalent to the corresponding Indian Degrees/ Certificates. Additional requirements of GRE/ TOEFL are also required for Foreign candidates whose medium of instruction in the preceding degree is not in English.

B. SPONSORED CANDIDATES

Candidates sponsored by the Industries, established Institutes/ R&D Organizations/National laboratories, who are fulfilling the educational qualifications listed in Table-1, are eligible to apply, provided (a) the employer grants two years of study leave and (b) the employer undertakes to financially support the candidate for the entire duration of two years. **The candidates who seek admission under the sponsored category do not require GATE qualification.**

C. FOREIGN NATIONALS

Foreign nationals who have a bachelor's degree in Engineering / Technology and a valid GRE score are eligible to apply. TOEFL/IELTS score is not mandatory for foreign nationals whose preceding degree is in English as the medium of instruction. Foreign nationals who do their Bachelors in India are given admission only through GATE and they are not considered under the regular Foreign Nationals admission category.

D. CANDIDATES SPONSORED BY THE MINISTRY OF DEFENCE

Candidates who are sponsored by the Defence Authority (Research & Training and Post Graduate Training), for admission to the M.Tech programs, are selected through a separate procedure, as followed by the Ministry of Defence. **The candidates who are sponsored by the Ministry of Defence do not require GATE qualification.**

3.2 How to apply?

Applications for the M.Tech program should be submitted in ONLINE mode only. For submission of applications ONLINE, please click https://pgadmit.iitpkd.ac.in Instructions and more details are available on this website.

Application Timeline	
Opening Date	26th of March, 2025
Closing Date	25th of April, 2025 (23:59 hours)
Application Fee	
SC/ ST/ Female/PwD/Transgender	Rs.250/-
All Other Candidates	Rs.500/-

4. ADMISSION TO THE M.Sc PROGRAMS

4.1 Who can apply?

The candidates who have qualified in JAM (Joint Admission test for Masters) and who fulfil the minimum educational qualifications as in the Table-2 of Section 2.2 are ONLY eligible for applying to the M.Sc programs.

4.2 How to apply

Application for admission to the M.Sc programs of IIT Palakkad should be done through the JAM 2025 portal of IIT Delhi, the details of which can be viewed at https://jam2025.iitd.ac.in/.

5. WHOM TO CONTACT IN CASE OF QUERIES?

PG Admission Committee
Indian Institute of Technology Palakkad,
Kanjikode West, Palakkad, Kerala - 678 623.

Please write to us in case of any queries to pgadm@iitpkd.ac.in or contact us at +91-491-209 2035/36 (queries will be answered during office hours (from 9 am to 5 pm) on all working days).

6. GENERAL INFORMATION AND IMPORTANT POINTS

1. The application fee should be paid through ONLINE mode only through the appropriate portal. Other modes of payment will not be accepted and will be subject to rejection of the application. The proof of payment / transaction shall be uploaded while filling up the application form at the appropriate place.

2. The application fee, once paid, will not be refunded under any circumstances.

3. Incomplete applications and applications without proper supporting documents will be summarily rejected. The institute will not be responsible for any incomplete applications and will not seek or entertain corrections of any sort from the candidates once the applications are submitted by the candidates. It is the sole responsibility of the candidates to check thoroughly and satisfy themselves before submitting.

4. Candidates should submit separate applications for each program they are applying for and application fee needs to be paid for each such application separately and the transaction details should be cited and proof of payment should be attached while submitting the application. In case of receipt of multiple applications from the same candidate with the same payment reference and supporting document, only one application will be considered by the institute and the rest will be rejected.

5. Candidates are advised to submit their applications well in advance and avoid last-minute rush. The dates for submission of the applications will not be extended for any reason.

6. While applying for the M.Tech admission, **the candidates shall register in the Common Offer Acceptance Portal (COAP).** IIT Palakkad is one of the participants in the Common Offer Acceptance Portal (COAP), which provides a common platform for a candidate to make the most preferred choice for admission to an M.Tech program of the participating institutes such as the IITs and the IISc. It is essential and mandatory that the applicants register with the **COAP 2025 portal** (https://gate.iisc.ac.in/coap2025) before they apply to the M.Tech programs of IIT Palakkad. Applications without a valid COAP registration number will be rejected outright.

7. Upon successful completion and submission of the online application for an M.Tech program, the PDF of the submitted application will be emailed to the registered mail address for reference and records. Candidates are advised to have a valid email address for this purpose. There is **NO** need to send the hard copy / printed version to IIT Palakkad.

8. Please have the following supporting documents (as applicable) ready in PDF format, while submitting the application.

a. Proof of Date of Birth (Birth Certificate or SSLC or equivalent Certificate)
b. Community / Category Certificate (GEN-EWS/OBC-NCL/SC/ST/PwD)
c. Nationality
d. Qualifying Degree Certificate
e. GATE Score Card (2025/2024/2023)
f. Proof of Payment of Application Fee (Separate Fee Receipts in case of submission of multiple applications by the same candidate)

7. GENERAL INFORMATION AND IMPORTANT POINTS

7.1 Fee Structure

S. No.	Particulars	MTech Indian, OCI/PIO/SAARC (INR)	MSc Indian, OCI/PIO/SAARC (INR)	Other Nationals (INR)
A. ONE TIME FEES (For students seeking fresh admission)				
1	Admission Fee	300.00	300.00	300.00
2	Grade Card / Thesis Fee	350.00	350.00	350.00
3	Provisional Certificate	200.00	200.00	200.00
4	Alumni Life Membership Fee	1,700.00	1,700.00	1,700.00
5	Modernization Fee	300.00	300.00	300.00
6	Student Welfare Fund	700.00	700.00	700.00
7	Publication Fee	250.00	250.00	250.00
8	Institute Caution Deposit (Refundable)	1,000.00	1,000.00	1,000.00
9	Library Caution Deposit (Refundable)	1,000.00	1,000.00	1,000.00
10	Convocation Fee	2,000.00	2,000.00	2,000.00
	Subtotal A	**7,800.00**	**7,800.00**	**7,800.00**
B. INSTITUTE FEES (per semester for all students)				
1	Tuition Fee (Statutory) #	5,000.00	3,000.00	100,000.00
2	Examination Fee	700.00	700.00	700.00
3	Registration - Enrollment Fee	300.00	300.00	300.00
4	Hostel Seat Rent *	6,500.00	6,500.00	6,500.00
5	Electricity, Water and SWD Charges *	1,500.00	1,500.00	1,500.00
	Subtotal B (for day scholars)	**6,000.00**	**4,000.00**	**101,100.00**
	Subtotal B (for hostellers)	**14,000.00**	**12,000.00**	**109,000.00**
C. ONE-TIME HOSTEL FEES (for students newly admitted to hostels)				
1	Hostel Caution Deposit * **(Subtotal C)**	**3,500.00**	**3,500.00**	**3,500.00**
D. STUDENTS' SECTOR FEES & ADVANCE DINING CHARGES (per semester for all students)				
1	Medical Insurance (revised every semester)	1,270.00	1,270.00	1,270.00
2	Wellness Fee (revised every semester as per the actuals)	1,200.00	1,200.00	1,200.00
3	Gymkhana Fee (revised every year)	1,600.00	1,600.00	1,600.00
4	Establishment A	5,500.00	5,500.00	5,500.00
5	Hostel Admission Fee *	200.00	200.00	200.00
6	Establishment B *	1,700.00	1,700.00	1,700.00
7	Advance Dining Charges * (settled against mess bills)	28,500.00	20,000.00	28,500.00
	Subtotal D (for day scholars)	**9,570.00**	**9,570.00**	**9,570.00**
	Subtotal D (for hostellers)	**39,970.00**	**31,470.00**	**39,970.00**

*** For hostellers only. Dining charges for MTech is for 6 months and 4 months for MSc**

 # Tuition fee is waived for SC/ST students (Indian Nationals only)

7.2 Seat Acceptance Fees

The Seat Acceptance Fees as indicated in the table below shall be paid by the candidates who are provisionally offered to join the M.Tech / M.Sc programs. The details of the mode of fee remittance will be indicated in the Provisional Offer Letter issued by the institute after each Round of the COAP 2025 admission process. This will be adjusted with the total fee to be remitted by the candidate at the time of final payment. For the candidates who have submitted applications for admission to the M.Sc programs through the JAM 2025 portal will be required to pay the Seat Acceptance Fee as per the instructions laid down in the JAM 2025 portal.

S. No.	Program	Seat Acceptance Fee (INR)	
		GEN/OBC/EWS	SC/ST/PwD
1	MTech / MSc (Regular)	10,000	5,000
2	MTech (Sponsored)	10,000	5,000
3	MTech (Sponsored by Defence)	10,000	5,000

7.3 Refund Policy

If a candidate withdraws his/her admission on or before the official joining date, the amount paid by him/her will be refunded after deducting the Seat Acceptance Fee paid by the candidate.

Once the candidate is admitted, he/she is considered to be on the rolls of the institute. For such candidates, **only the caution deposits will be refunded.**

The Official Date of Joining is the Date of the Commencement of the Institute's Orientation Program, which will be mentioned in the Welcome Letter.

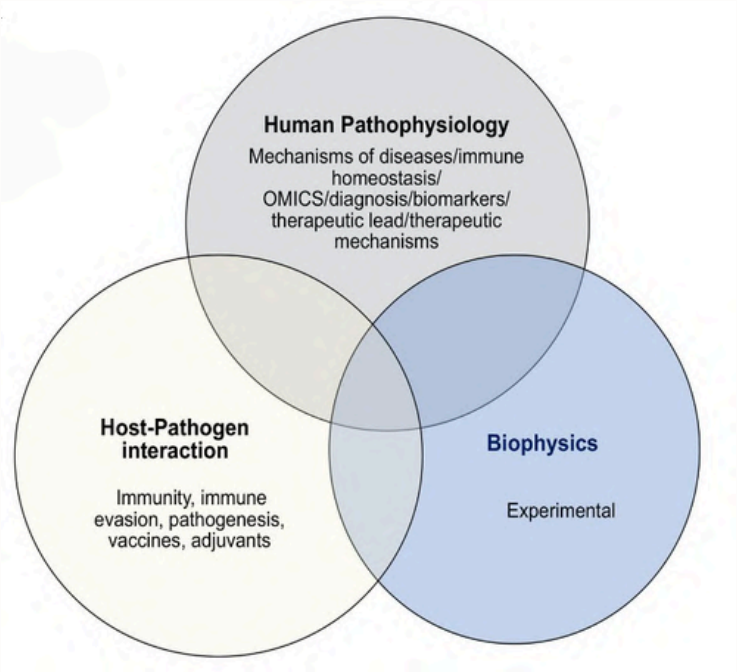
8. MAJOR HIGHLIGHTS OF DISCIPLINES AT IIT PALAKKAD

8.1 Biological Sciences and Engineering (BSE)

Department of Biological Sciences and Engineering (BSE) at Indian Institute of Technology Palakkad aims at interdisciplinary biomedical research and biotechnology to improve human and animal health under 'One Health' concept.

The current focus of the department is on

i) Human pathophysiology and Immunology
ii) Host-pathogen interaction
iii) Diagnosis of diseases
iv) Biophysics
v) Protein design
vi) Molecular oncology
vii) RNA biology



By integrating fundamental and translational research, we aim to identify biomarkers for immune response to immunotherapies, develop sensors for the diagnosis of diseases, design in silico-based novel drug molecules, create screening tools for therapeutic molecules. identify and validate lead molecules for vaccine development, and design therapeutic proteins, advanced molecular biology-based diagnostics, and nanotherapeutics. Additionally, we focus on phytotherapeutic molecules and their modifications for metabolic diseases and antibacterial therapies, as well as utilizing 3D culture systems to investigate disease pathogenesis.

The current faculty members and their main interests are:

Primary affiliation

1. **Prof. Jagadeesh Bayry,** MVSc, PhD (Sorbonne University, Paris, France): Immunology, Immunotherapy, host-pathogen interaction.
2. **Dr. Prasanna Bhat,** PhD (Indian Institute of Science, Bangalore): Host-virus interactions in RNA viruses, discovery of antivirals.
3. **Dr Prasun Kumar,** PhD (Indian Institute of Science, India): Computational biology, Algorithm development, Protein design, Structural biology.
4. **Dr. Sivakumar Vadivel Gnanasundram,** PhD (Heidelberg University, Germany): RNA biology; Translation control; Oncogenomics; Stress signalling; RNA structure.
5. **Dr. Abdul Rasheed P,** PhD (NIT Calicut) (DBT Ramalingaswami fellow): Biosensors, early stage disease diagnosis, nanomaterials, microbial corrosion.

Secondary affiliation

1. **Dr. Sushabhan Sadhukhan**, PhD (Case Western Reserve University, Cleveland, Ohio, USA): Chemical biology, proteomics, metabolomics, and development of small molecule inhibitors
2. **Dr. Bibhu Ranjan Sarangi**, PhD (Raman Research Institute, Bangalore): Experimental biophysics and physics of cancer. We intend to develop a strong and dynamic scientific community that performs cutting edge research and educational activities through Academic-Industry-Health Care Systems partnerships to improve human and animal health under the umbrella of ONE HEALTH.

Programs

PhD Program in Biological Sciences & Engineering

We are currently offering MS/PhD program and 9 scholars are on roll. The members of the Department are engaged in cutting edge research in different domains of Biomedical Research as depicted above.

Research facilities

We have acquired excellent state-of-the-art research facility for the biomedical research and in the process of further expansion. Other commonly used instruments like confocal microscope, fluorescence microscope, fluorescence spectrophotometer, UV spectrophotometer, liquid chromatography–mass spectrometry, polymerase chain reaction machine, biosafety level 2 cabinet for tissue culture work and others are already available either in the department or at the Institute central facility. The Institute Ethics committee for the research involving humans is in place.

8.2 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. Rositha Kuniyil,** PhD (BIST, Spain)
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)
9. **Dr. Yugender Goud Kotagiri,** PhD (NIT, Warangal)
10. **Dr. Yuvaraj Kuppusamy,** PhD (IIT Madras)
11. **Prof. V. Haridas** (Visiting faculty from IIT Delhi)
12. **Prof. Viswanathan Kumar** (Honorary Professor)
13. **Dr. Debabrata Dhara,** PhD (TIFR, Hyderabad)
14. **Prof. C. S. Gopinath** (Visiting Faculty from NCL Pune)

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 PhD program. Currently, a total of 39 PhD scholars, 5 postdocs, 10 project staff are working in various areas of theoretical and experimental chemistry under the guidance of the highly motivated faculty of the department. Department of Chemistry is a young and vibrant community continuously aspiring to define success in terms of excellence in research and teaching. Well-equipped with state of the art facilities, we are engaged in teaching and research in theoretical and experimental areas spanning across the chemistry of life to sustainable living. Currently there are 13 faculty members and 4 staff in the department.

The department is engaged in research in the following 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-organic chemistry, Chemical biology
- Electro-analytical chemistry and Nano-biosensors
- Main group and Organometallic chemistry
- Computational Organic Chemistry
- Transition metal Catalysis
- Small molecule activation
- Insilico catalyst design and Machine learning
- Artificial Photosynthesis
- Green Hydrogen and Solar Energy Utilization

M.Sc Program in Chemistry

Students with a bachelor's degree in basic sciences with Chemistry as a subject for at least two years are eligible for the M.Sc in Chemistry in IITPKD. The curriculum of M.Sc (Chemistry) of IIT Palakkad has been developed in a modern and effective format instead of following a traditional framework. The emphasis is to help students to have a sufficient breadth of knowledge on the different sub-disciplines in chemistry while delving deeper in their preferred area. This is a four semester program with the courses designed around a common theme emphasising synthesis, structure, energetics and dynamics.

Under this common theme, several important theoretical and experimental fundamentals of Physical, Inorganic, Organic and interdisciplinary topics shall be covered. The first two semesters consist of common core courses, whereas, the higher semesters will contain electives and projects as major components. The laboratory courses are designed to impart training in both theory and experimental skills. This curriculum will be helpful for the students who aspire to pursue their higher studies in future and will be crucial to get them exposed to basic research activities.

Facilities

The department has an undergraduate and a postgraduate chemistry which are 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
- Two port Glove box

Sophisticated analytical facilities in chemistry for research and teaching

Glove box used for battery applications and to handle highly Air and Moisture sensitive compounds

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 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 Gravimetric 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. For more details about the department of chemistry, you may visit https://chemistry.iitpkd.ac.in/. Further details of the available central facilities at IIT Palakkad can be seen at https://cif.iitpkd.ac.in/.

The Institute is also in the process of setting up a sophisticated NMR facility.

UG / PG Lab of the discipline of Chemistry

8.3 Civil Engineering

The Faculty

1. **Dr. Ankesh Kumar,** PhD (IIT Delhi)
2. **Dr. Arun C. O,** PhD (IIT Madras)
3. **Dr. Athira Gopinath,** PhD (BITS Pilani)
4. **Dr. Athira P**, PhD (IIT Madras)
5. **Dr. B. Sridharan,** PhD (IIT Madras)
6. **Dr. B. K. Bhavathrathan,** PhD (IIT Bombay)
7. **Dr. C. V. Veena Venudharan,** PhD (IIT Kharagpur)
8. **Dr. Divya P. V.,** PhD (IIT Bombay)
9. **Dr. Gokulnath C,** PhD (IIT Madras)

10. **Dr. Anil Kumar M. V,** PhD (IIT Madras)
11. **Dr. Madhu Karthik M, PhD** (Texas A&M University, USA)
12. **Dr. N. Sai Surya Sree Aparna,** PhD (IIT Bombay)
13. **Dr. Praveena Gangadharan,** PhD (IIT Madras)
14. **Dr. Rakesh J. Pillai,** PhD (IIT Madras)
15. **Dr. Sanjukta Chakraborty,** PhD (IIT Kanpur)
16. **Dr. Sarmistha Singh,** PhD (Auburn University)
17. **Dr. Senthilkumar V,** PhD (IIT Madras)
18. **Dr. Subhasis Mitra,** PhD (Auburn University, USA)
19. **Dr. Subrat Kumar Mallick,** PhD (IIT Guwahati)
20. **Dr. Sudheesh T K,** PhD (University of Florida, USA)
21. **Dr. Deepak Jaiswal,** PhD (Pennsylvania State University, USA) – secondary affiliation

Civil Engineering is one of the five B.Tech programs that are being offered at IIT Palakkad since its inception in 2015. PhD and MS programs in Civil Engineering, with specialisations in Structural, Geotechnical, Water Resources, Transportation, Construction Materials, Construction Engineering & Management, and Environmental Engineering started in July 2017. A total of 79 research scholars (71 at PhD level and 8 at Masters level) are currently enrolled in the research-oriented programs. 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. The department is launching two new M.Tech programs, Structural Engineering and Water Resources Engineering, in the upcoming academic year (July 2025). Each M.Tech program has an annual intake of 15 students, with a curriculum designed to meet both industry and academic requirements. In the last ten years, the Civil Engineering department has successfully set up all basic labs for the B.Tech and M.Tech programs. In addition, several advanced labs have also been set up for use by undergraduate and postgraduate students and to execute research projects.

Some basic UG/PG laboratory equipment

The twenty 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 brings different perspectives to teaching and research for Civil Engineering students.

The areas of research in Civil Engineering are quite diversified and include:

- Pavement materials -maintenance and rehabilitation, sustainable pavements.
- Characterization of construction materials and special concrete, fibre reinforced Concrete.
- Planning design phases and process management, lean construction, automation in construction, policy making in infrastructure projects.
- Bioelectrochemical systems for wastewater treatment, desalination, defluoridation, nutrient recovery from urine, metal reduction and recovery.
- Soil and rock mechanics, deep foundations, slope & embankment stabilisation, landslide mitigation, analytical methods in geomechanics, ground improvement, cyclic behaviour of soils, constitutive modelling in geomechanics, geosynthetics, green geotechnics, underground structures and slope stability.
- Predictions in ungauged basins, hydrological modelling and uncertainty analysis, hydroclimatology, water policy analysis, climate and anthropogenic impacts on surface and groundwater hydrology.
- Buckling and post-buckling behaviour of thin-walled open sections, reinforced and prestressed concrete, deteriorating structures, vibration control using passive and feedback control mechanisms, optimal control, and base isolation, stochastic mechanics, structural reliability, fracture and damage mechanics.
- Urban road networks, traffic flow modelling and simulation, network disruption, and transportation systems & simulation.

Some advanced laboratory facilities

The faculty members of Civil Engineering are also actively involved in executing several consultancy projects in various domains. Apart from the scholastic activities, the students, staff, and faculty members in Civil Engineering are actively involved in several outreach programs.

M.Tech in Geotechnical Engineering

The major objective of the program is to train and prepare students for a career in Geotechnical Engineering as per the current industrial needs. It is also intended that the program develops a passion and a firm base for research at the doctoral level (PhD). The program offers courses in various specialised areas of Geotechnical Engineering, such as soil mechanics, geotechnical investigation, foundation engineering, ground improvement techniques, environmental geotechnics, slope stabilisation, retaining structures, rock mechanics and underground structures, and soil dynamics to name a few. The coursework is broadly divided into core and elective courses. While the core courses are meant to provide a solid foundation to M.Tech students in Geotechnical Engineering, the elective courses offer the students the flexibility to choose courses that best suit their future career aspirations. The elective courses include advanced topics that are relevant to current industry requirements. The program has also been planned meticulously to have a good blend of theory and practice, wherein, in addition to the theory courses, students are exposed to experimental methods and the computational/modelling aspects of geotechnical analysis and design.

The Geotechnical Engineering laboratory is well equipped with all the basic equipment for the characterization of geomaterials and advanced testing equipment. The state-of-the art advanced testing equipment currently includes automated static and cyclic triaxial systems, computerised direct shear system, automated consolidation apparatus, computer-controlled flexible wall permeameter, large soil-geosynthetic interface resistance testing system, large pull out test set-up for geosynthetics, soil water characteristic curve (SWCC) apparatus, constant rate of strain (CRS) test equipment, rock triaxial test apparatus, rock creep testing equipment, split Hopkinson pressure bar (SPHB) etc. In addition, X-ray Diffractometer (XRD) and Scanning Electron Microscopy (SEM) are available in the Central Instrumentation Facility (CIF) of the Institute. The Institute is in the process of procuring additional advanced equipment and various sensors for model and large– scale geotechnical studies.

The institute has state-of-the-art High-Performance Computing Clusterss (HPCs) 'that are available to the students, research scholars, staff, and faculty. Computational facilitates for conducting studies in geotechnical engineering include ABAQUS, PLAXIS 2D, PLAXIS 3D, ANSYS, GeoStudio 2018 (SLOPE/W, SEEP/W, SIGMA/W, QUAKE/W, TEMP/W), FLAC 2D, FLAC 3D, PFC3D, etc. for finite element and finite difference modelling of geotechnical problems, LPile, FB-Multipier, and FB-Deep (educational version) for individual and group analyses of deep foundation and MATLAB and other programming software packages.

Photographs of some of the facilities in the Geotechnical Laboratory are given in the following pages.

Automated Cyclic Triaxial System

Computerised Static Triaxial System and Flexible Wall Permeameter

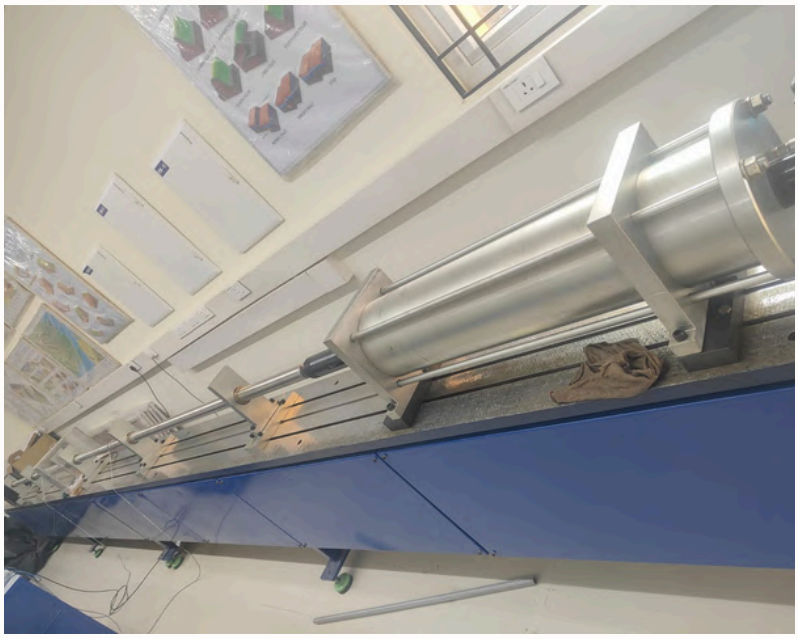
Automated Direct Shear System and Consolidation Test apparatus

Large Soil-Geosynthetic Interface Resistance Testing System

Grout Pump and Sensors for Field Tests

Large Pull Out Test Apparatus for Geosynethetics

Rock Testing Apparatus



Freezer-Thaw Chamber and Split Hopkinson Pressure Bar (SPHB) Apparatus

M.Tech in Structural Engineering

The M.Tech program in Structural Engineering is designed to

- To equip students with strong foundational technical knowledge to practice structural engineering as a career.
- To give hands-on training to analyze and design various structures, thus develop a strong sense of self-confidence to solve challenging problems.
- To expose and teach skills that are relevant to the structural engineering industry.
- To lay a foundation to take up research as a career, and to develop a desire for lifelong learning.

The program is envisioned to provide the students an excellent learning opportunity in different areas of structural engineering. The program is devised to equip the students to handle various industry related problems in structural engineering, as well as take up high quality research projects. The students will be able to choose their career specialization during the program, and will have the freedom to take a sufficient number of electives to achieve their career goals. The curriculum is designed such that there is a good mixture of core and elective subjects in structural engineering. The core courses will help the students to lay a strong foundation in the areas of structural mechanics, dynamics, analysis and design, all of which are essential for a successful career in structural engineering.

These core courses build on the basic undergraduate knowledge of the students, or on courses that are taught as part of the program. The program offers a sample template of courses to guide the students through the four semesters, the details of which are discussed below.

In the first semester, Advanced Mechanics of Solids, Advanced Design of Metal Structures, Structural Dynamics and Finite Element Method in Structural Mechanics are the recommended core courses. The students are also encouraged to take one program major elective, from a basket of electives offered by the department. In addition to the department core and elective courses, two general category courses, namely, Communication Skills and Technical Writing, which are designated as mandatory core courses for all the M.Tech students are included. The students have to take a minimum of 17 credits in their first semester as per the designed template.

In the second semester, the template recommends two program based core courses, namely, Nonlinear Analysis of Structures and Advanced Design of Reinforced Concrete Structures. The Advanced Structural Engineering Lab is also part of the second semester. The experiments in the lab are designed to give the students hands-on training to understand the behaviour of reinforced concrete and steel structural members, use of non- destructive testing methods, deformation and strain measurement techniques and other advanced concepts. The template allows the students to take two more program based electives and one open elective during the second semester. Similar to the first semester, the students are expected to take a total of 17 credits in the second semester as well. By the end of the second semester, the students are well equipped with the basic courses in structural engineering, which will serve them well for the summer internship / mini project that they are expected to do before the third semester. This is designed as a course without credits (CWC), to give the freedom to the students to explore industry and academic projects.

In the third semester, in addition to an open elective, the students have to enroll for a course on Structural Design Practice, which is a highlight of this program. This course, with one lecture hour and 3 hours of practice session per week, is designed to prepare the students to be industry-ready, starting from the conceptual design of structures, to the production of final design drawings and detailing. They will get an exposure to the design of different structures such as buildings, bridges, and water tanks using different codal provisions. They will also be exposed to the various software packages that are popularly used in practice. It is also planned to have a comprehensive viva as part of the third semester, the primary object of which is to evaluate their fundamental knowledge, and prepare them for competitive interviews.

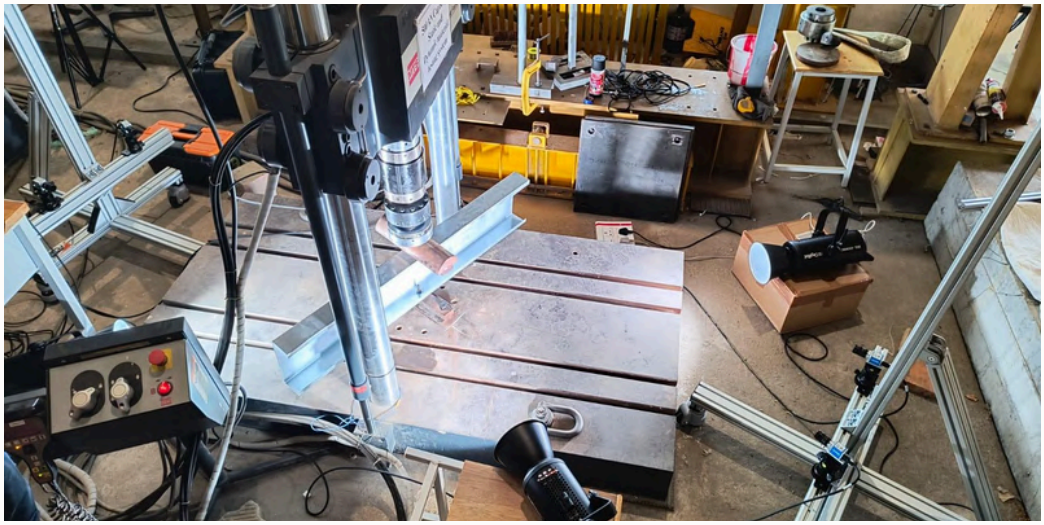
The students will also have the opportunity to choose their final year projects, from a basket of projects. The project is distributed over two semesters with a total of 20 credits. The students will be working closely with a project mentor within the Structural Engineering division, with co-supervisors from other specializations and departments (if required). A student has to earn a total of 60 credits, to be awarded the M.Tech degree in structural engineering, and is in accordance with the institute regulations. Overall the program is designed with a mission to equip the students with the background knowledge that is required to practice structural engineering as a career, and also give them an opportunity to have strong fundamentals to take academic/research careers. The structural Engineering Laboratory is equipped with state of the art equipment which meet the current industry and research standards. The lab has an in-house designed 3D self-straining test frame with a vertical load capacity of 4000kN and horizontal capacity of 1000kN. The lab features equipment such as static and dynamic material testing systems with 500kN and 100kN servo-hydraulic test systems, Structural Actuators of Capacities 100kN, 250kN and 500kN, Load jacks of capacities 100kN, 1000kN & 2000kN, UTM of Capacity 2000kN, Digital Image Correlation System, Rebound Hammer, Shakers, bi-axial testing machines, 5 kN MTS actuator with high frequency range, data acquisition systems, LVDTs, strain gauges etc. The lab houses an overhead crane of capacity 5 tons.

The institute has state-of-the-art High-Performance Computing Clusters (HPCs) ‘that are available to the students, research scholars, staff, and faculty. Further students will be having access to most of the industry standard commercial packages such as ABAQUS, ANSYS, SAP2000, ETAB, STAAD Pro., Opensees etc. These tools allow students to perform structural analysis and simulations that reflect real-world engineering practices, ensuring they are job-ready upon graduation. The students will be exposed to the use of different programming languages like MATLAB, PYTHON, C++, FORTRAN etc which help them to develop their own computational algorithms to solve the real-world problems.

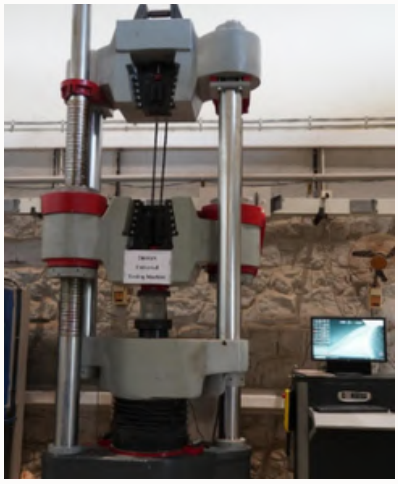
Photographs of a few facilities available in structural engineering labs are given below.

500kN Capacity Servo-hydraulic Static and Dynamic Testing System

100kN Capacity Servo-hydraulic Static and Dynamic Testing System

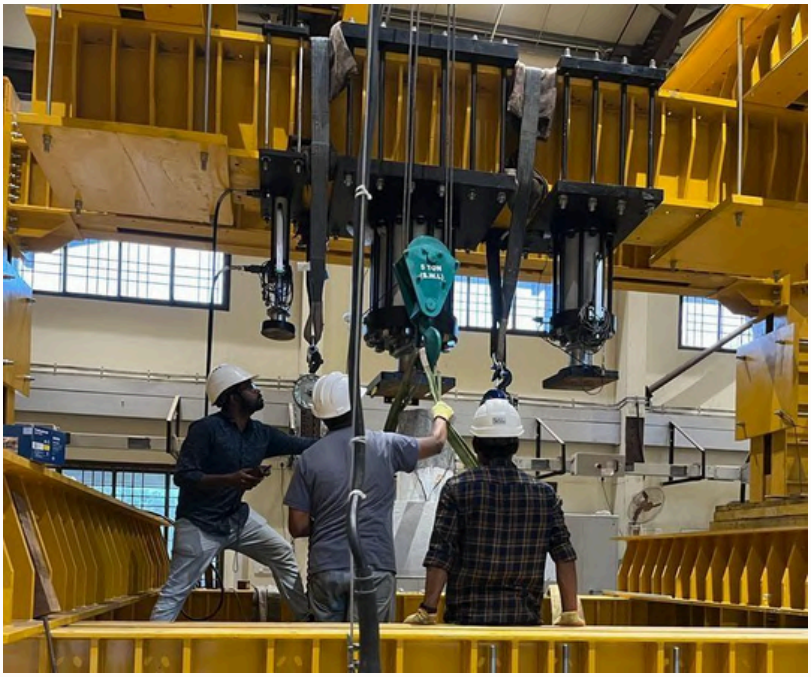


Test Facility Equipped with Digital Image Correlation System



2000kN Capacity Universal Testing Machine

Rebound Hammer



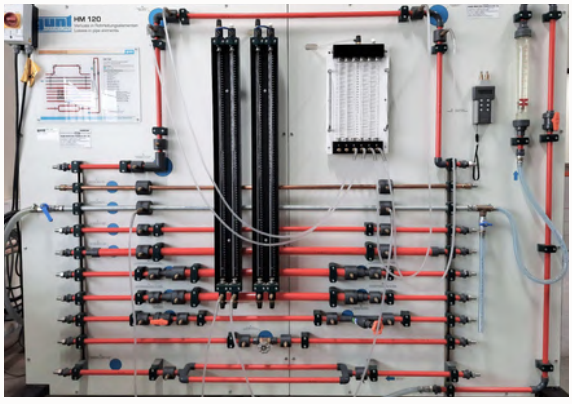
Self-straining test frame having a vertical load capacity of 4000kN and horizontal capacity of 1000kN with Load jacks

M.Tech in Water Resources Engineering

The M.Tech specialization in Water Resources Engineering at IIT Palakkad is committed to educating, training, and equipping the current generation of engineers to tackle future water-related challenges. As the challenges posed by global warming and climate change strain the natural water cycle, effective water resource management becomes ever more urgent.

The Water Resources Engineering curriculum is structured to include a well-balanced mix of core and elective courses with exposure and knowledge in theory, modeling and practice. Key components of the program will cover understanding of advanced hydrologic and hydraulic principles, design of water conveyance systems and resilient hydraulic infrastructures, including dams, barrages, and levees. The program is designed to train students to address key challenges in water resources engineering, including but not limited to flood forecasting, climate change impact assessment, policy development for enhancing national water and food security, and the design of climate-resilient hydraulic structures. In the second year of the two-year program, students will undertake a project in their chosen area of interest within the broader field of water resources engineering. The projects are designed to address real-world challenges and will involve elements of experimentation, simulation and modeling, and the application of data science in water resources management. Graduates will have the option to pursue higher studies and build a career in academia or R&D labs, or enter the industry by working with consulting firms, design firms, contractors, or government agencies, gaining a balanced mix of office and on-site experience.
The institute features state-of-the-art High-Performance Computing Clusters (HPCs) available to the students, research scholars, and faculty. The water resources engineering laboratory is equipped with basic and advanced equipment essential to conduct post-graduate experiments. The state of the art computational facilities include softwares such as ArcGIS, ERDAS for geospatial data analysis, and hydrologic models such as MIKE, SWAT. Below are a few facilities available at the water resources engineering laboratory.

Experimental flume



Pipe network experiment

8.4 Computer Science and Engineering

The Faculty

1. **Dr. Albert Sunny,** PhD (IISc, Bangalore)
2. **Dr. Anish Hirwe,** PhD (IIT Hyderabad)
3. **Dr. Avirup Mandal,** PhD (IIT Bombay)
4. **Dr. Deepak Rajendraprasad,** PhD (IISc, Bangalore)
5. **Dr. Jasine Babu,** PhD (IISc, Bangalore)
6. **Dr. Koninika Pal,** PhD (Technical University, Kaiserslautern)
7. **Dr. Krishnamoorthy Dinesh,** PhD (IIT Madras)
8. **Dr. Krithika Ramaswamy,** PhD (IIT Madras)
9. **Dr. Piyush P. Kurur,** PhD (IM.Sc, Chennai)
10. **Dr. Pratik Ghosal,** PhD (University of Wroclaw, Poland)
11. **Dr. Sahely Bhadra,** PhD (IISc, Bangalore)
12. **Dr. Sandeep Chandran,** PhD (IIT Delhi)
13. **Dr. Satyajit Das,** PhD (University of South Brittany, France, University of Bologna, Italy)
14. **Dr. Srimanta Bhattacharya,** PhD (ISI, Kolkata)
15. **Dr. Unnikrishnan Cheramangalath,** PhD (IISc, Bangalore)
16. **Dr. Vivek Chaturvedi,** PhD (Florida International University, USA)

The Computer Science and Engineering (CSE) department in Indian Institute of Technology Palakkad offers undergraduate, graduate and doctoral programs. The CSE envisions imparting knowledge across depth and breadth of computer science and engineering. 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 and many of our students are pursuing higher studies in reputed universities in India and Abroad.

Undergraduate Program

Bachelor of Technology in Computer Science and Engineering

Graduate Programs

1) Master of Science (by Research)
2) Master of Technology in Computing and Mathematics (MCaM), jointly with the Department of Mathematics
3) Master of Technology in System on Chip Design (SoCD), jointly with the Department of Electrical Engineering
4) Doctor of Philosophy

Research at CSE Department, IIT Palakkad

The core research areas and subareas of the CSE department are listed below.

1. Theoretical Computer Science: Algorithms, Complexity Theory, Cryptography, Combinatorial Optimization, Probabilistic Computing, Graph Theory, Combinatorics, Discrete Mathematics, Computational Algebra.
2. Programming Languages, Compilers and Verification: Programming Languages, Type Theory, Compilers, Program Analysis, Proof Assistants, Formal Verification
3. Computer Systems: Computer Architecture, Electronic Design Automation, Cyber Physical Systems, Reconfigurable Computing, Low power SoC, Systems for AI, Operating Systems, High Performance Computing, Database Systems, Computer Networks, Distributed and Interconnected Systems.

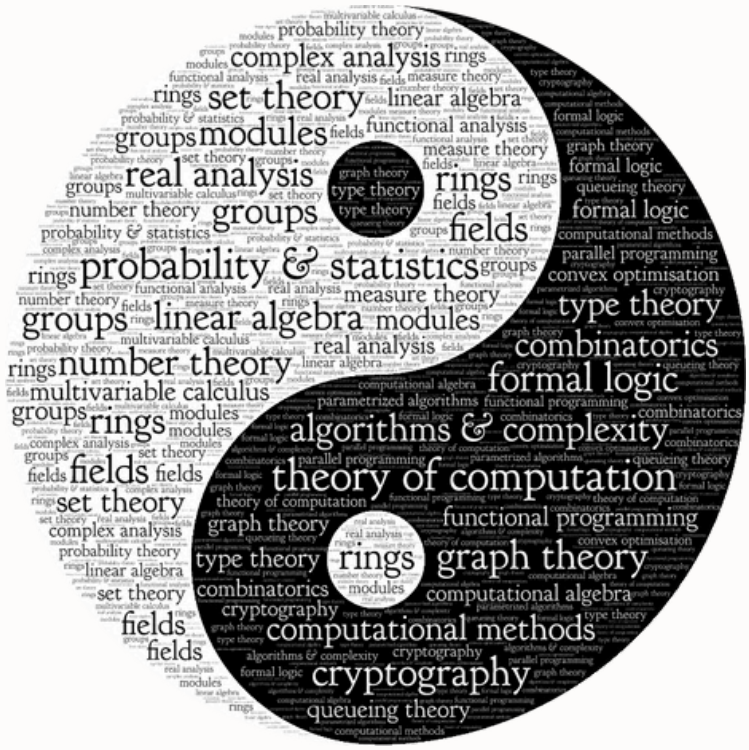
Other associated research areas are Probability Theory, Machine Learning, Natural Language Processing, Computer Vision and Data Mining.
The CSE faculty members are active in research and continuously engage with industry and academia around the globe. They have active research collaborations with world 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.

Interdisciplinary Master's programs

(i) M.Tech in Computing and Mathematics

Computing and Mathematics have been tied together ever since the notion of computability was formalised. Algorithmic procedures accompanied by their well founded mathematical proofs of guarantees are integral components of computational problem solving. The focus of this program is to cover some aspects of this interrelationship between Computing and Mathematics. The program offers a unique mix of computer science courses with supporting

mathematics courses that together cover theoretical and practical aspects of computation. The targeted audience come from two backgrounds (1) Computer Science and Engineering (2) Mathematics, thus providing an opportunity for diverse peer learning to the students.



The objective of the program is to train students in areas which are integral to both Computing and Mathematics. To facilitate this goal, the first semester will comprise an appropriate set of bridge courses for the students depending on their background. That is, students from the Mathematics background will be trained in certain basic core courses from computer science and students from the Computer Science background will be trained in some core mathematics courses. This would make the advanced elective courses offered in both the domains accessible to all students in the subsequent semesters.

Major areas include Algorithms, Graph Theory, Combinatorics, Logic, Programming Languages, Computational Methods, Foundations of Data Science & Machine learning, Probability & Statistics and Linear Algebra. The program culminates with a year-long project/dissertation in the second year that prepares students to pursue careers that require innovations involving sophisticated applications of mathematics in computer science.

For more information, visit: https://cse.iitpkd.ac.in/mcam/

(ii) M.Tech - System on Chip Design (SoCD)

With deep-penetration of Intelligent Systems into our everyday lives through advances in the Internet-of-Things (IoT), there is an increased demand for highly-skilled engineers in both academia and industry who can take an idea and develop it into a fully-functional system. Developing such cutting-edge, state-of-the-art systems require deep expertise in a wide-range of fields such as system design, circuit design, physical design, device design, verification, testing and validation. M.Tech in System-On-Chip Design (SoCD) is a program that caters to this demand for highly-skilled and well-trained engineers.

This is an interdisciplinary program offered jointly by the Computer Science and Engineering (CSE) and Electrical Engineering (EE) Disciplines at IIT Palakkad. The curriculum of this course has been designed by experts from Industry and academia to cover both the fundamentals, as well as the engineering aspects of designing and developing IC based systems. The M.Tech curriculum is well-balanced where every course has a companion lab component and prescribes a year-long project. This gives a firm platform for graduating students to excel in industry or academia. Infact, our students are doing internships at leading chip design and manufacturing companies such as Intel, AMD, Qualcomm, etc. For more information, visit: https://iitpkd.github.io/msocd/.

The facilities at IIT Palakkad include latest boards and software from ARM, Cadence, Xilinx necessary for developing modern Systems-On-Chip. We also have a micro-nano device fabrication facility with class 1 lakh and 10000 cleanrooms, and a characterization facility.

For more details on the Department of Computer Science and Engineering, please visit https://cse.iitpkd.ac.in.

8.5 Data Science

The Faculty

1. **Dr. Sahely Bhadra,** PhD (IISc, Bangalore)
2. **Dr. Narayanan Chatapuram Krishnan,** PhD (Arizona State University, USA)
3. **Dr. Mrinal Kanti Das,** PhD (IISc, Bangalore)
4. **Dr. Satyajit Das, PhD** (University of South Brittany, France, University of Bologna, Italy)
5. **Dr. Koninika Pal,** PhD (Technical University Kaiserslautern, Germany)
6. **Dr. Garima Shakya,** PhD (IIT Kanpur)
7. **Dr. Sahasranand KR** (PhD: IISc Bangalore)
8. **Dr. Nikhil Krishnan M** (PhD: IISc Bangalore)
9. **Dr. Swapnil Hingmire** (PhD: IIT Madras)

The Department of Data Science aims to provide world-class education, pursue cutting-edge research, and develop data science & artificial intelligence technologies for societal benefit. The department offers PhD, MS (by Research) and an interdisciplinary M.Tech program in Data Science. A major agenda of the department is to foster industry and academic collaborations. The major areas of research in the department are Artificial Intelligence and Machine learning: Kernel Learning, Multiview Learning, Robust Optimization and Convex Optimization for Large Data, Anomaly Detection in Time Series, Privacy-aware Learning, Bayesian Models, Meta Learning, Explanabile and Interpretable Machine Learning, Generative Modeling, Fairness in Machine Learning, Human-in-the-loop Learning, Systems for Artificial Intelligence, Architecture for Deep Learning, Energy-efficient and High-performance Systems for Multimedia Applications, such as computer vision, video compression, and imaging, Energy-aware Algorithms for Signal Processing; Computer Vision:

Transfer Learning, Domain Adaptation, Zero and Few-shot Learning, Applications in Text Recognition, Plant Disease Recognition, Remote Sensing, Information Retrieval and Natural Language Processing, Harvesting Knowledge from Text and Web Tables, Knowledge Base Curation, Question-Answering, Building Smart Indices for Efficient Similarity Search, Scientific Document Understanding; Information Theory and Statistics: Statistical Learning and Inference, Federated learning. Multi-agent systems (Game theory and Mechanism design) for social good: resource allocation, Fair and Efficient matching. Low-Latency Communications, Distributed Learning, Distributed Storage, Quantum Error-Correcting codes.

M.Tech in Data Science

The Department of Data Science offers an M.Tech in Data Science. A major highlight of the program is its interdisciplinary nature with four engineering streams (CSE, EE, CE, ME) and three science streams (Physics, Mathematics, Humanities & Social Sciences) participating in the program in addition to Data Science. The curriculum was developed by leading data scientists in the country making it relevant for the current and future requirements of Data Science in the industry as well as in academic research. The Department of Data Science comprises young yet experienced researchers in various fields of data science, artificial intelligence, machine learning, statistics, information theory, and several application areas like climatology, traffic engineering, fluid mechanics, data security, econometrics, linguistics, material science etc. Students from various backgrounds are admitted to the program. They will go through foundational training, e.., Linear algebra, Probability, Data Engineering Machine Learning Optimization, in the first semester, with more depth and breadth in various application areas in the following semesters through electives. Higher semester courses include Deep Learning, Big Data Lab, Data Security, Reinforce Learning, Kernel learning, responsible AI, etc. Core courses in the M.Tech Program will be mainly instructed by faculty members from Data Science, Computer Science and Engineering, Mathematics, and Electrical Engineering.

Students will work on a year-long research or development project with state-of-the-art computational and experimental facilities that will likely lead to publications, patents, products, or software. To achieve expertise in both fields, students will be encouraged to do projects on the application of data science in their areas of specialisation. There will be ample opportunities for the students after graduation - enrolling in a doctoral program at overseas top universities or a job within or outside the country. The students will get the opportunity to learn data science in a vibrant ecosystem around the area and actively contribute to the front line research. Our M.Tech Data Science program is well received in the industry; More than 85% of the pioneers of the program (who came from varied

backgrounds: Computer Science and Engineering, Mathematics, Electrical Engineering, Instrumentation Engineering, Mechanical engineering) have received data science related job offers from international companies.

8.6 Electrical Engineering

The Department of Electrical Engineering (EE) at IIT Palakkad offers a vibrant environment for undergraduate, post graduate education and research in many areas of Electrical Engineering. We are a team of 19 faculty members, 260 students and 7 staff members engaged in cutting edge research and teaching in several frontier areas of Electrical Engineering.

The Faculty

1. **Dr. Anirudh Guha**, PhD (IISc, Bangalore)
2. **Dr. Anoop Thomas,** PhD (IISc, Bangalore)
3. **Dr. Arun Rahul S,** PhD (IISc, Bangalore)
4. **Dr. Arvind Ajoy,** PhD (IIT Madras)
5. **Dr. Attoti Bharath Krishna** (IIT Delhi)
6. **Dr. Birenjith Sasidharan** (IISc, Bangalore)
7. **Dr. Jobin Francis,** PhD (IISc, Bangalore)
8. **Dr. Manas Kumar Jena,** PhD (IIT Delhi)
9. **Dr. Naga Brahmendra Yadav Gorla,** PhD (NUS, Singapore)
10. **Dr. Nikhil Krishnan M,** PhD (IISc, Bangalore)
11. **Dr. Revathy P,** PhD (IISc, Bangalore)
12. **Dr. M. Sabarimalai Manikandan,** PhD (IIT Guwahati)
13. **Dr. Shaikshavali Chitraganti,** PhD (University of Lorraine, France)
14. **Dr. Sneha Gajbhiye,** PhD (IIT Bombay)
15. **Dr. Sreenath Vijayakumar,** PhD (IIT Madras)
16. **Dr. Subrahmanyam Mula,** PhD (IIT Kharagpur)
17. **Dr. Sukomal Dey,** PhD (IIT Delhi)
18. **Dr. Swaroop Sahoo,** PhD (Colorado State University, USA)
19. **Dr. Vijay Muralidharan,** PhD (IIT Madras)

Specialisation

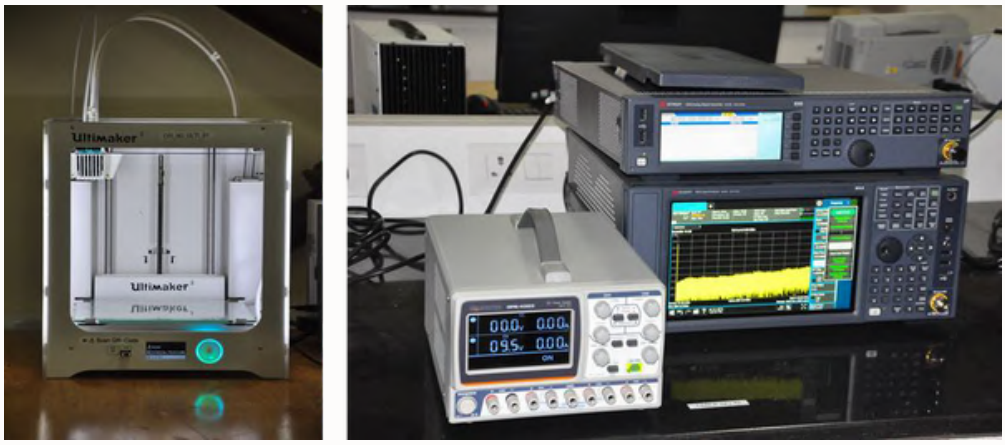
- Antennas, Microwave Engineering and Radar Systems
- Biomedical Signal Processing and Imaging
- Communication and Signal Processing

- Sensors, Measurements and Instrumentation
- Nanoelectronics, Plasmonics and Semiconductor Devices
- Power Systems and Power Electronics
- Robotics, Instrumentation and Control
- VLSI Signal Processing Circuits and Systems

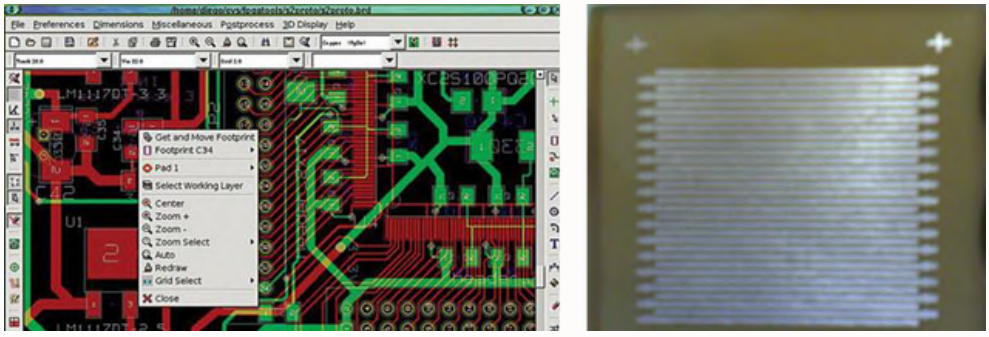
Laboratories

Electronics Technology Laboratory

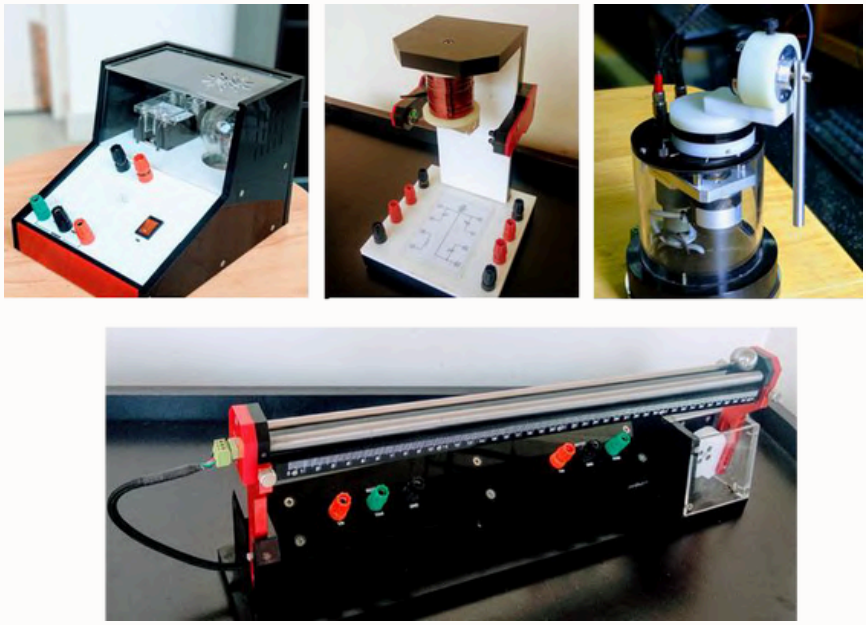
Electronics Technology Laboratory provides an integrated environment for students to understand the working of analog and digital circuits, microprocessors, microcontrollers, and the interplay between computational tools and electronics hardware. Each desk is equipped with digital storage oscilloscopes, 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.



General Electronics Lab, Left: 3D Printer, Right: Typical Data Acquisition Set Up



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



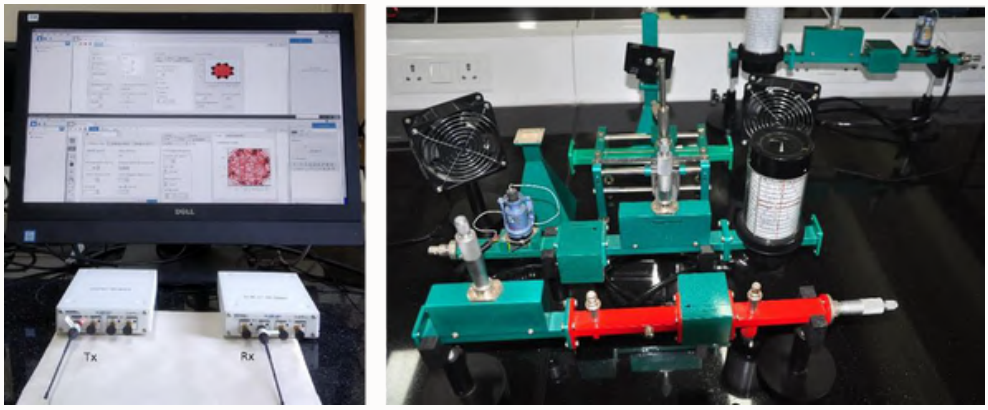
Control Systems Lab, In Clockwise Order from Top: Temperature Control, Magnetic Levitation, Inverted Pendulum and Ball and Beam Balancing.

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.

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.



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

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.

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

Sensors and Electronic Instrumentation Laboratory (SEIL)

Sensors and Electronic Instrumentation Laboratory (SEIL) is a complete sensor development, instrumentation and measurement research lab, which aims to design and develop various application-oriented sensors and signal conditioning circuits. Typical facilities of the lab include equipment such as Mixed Signal Oscilloscope (MSO44-Tektronix), Arbitrary Function Generator (AFG 31000- Tektronix), Digital Multimeter (DMM6500-Keithley), NI-ELVIS III, Smart Tweezers (ST5S-Ideal-tek), Infrared moisture meter, Soil moisture meters, Variable inductance and capacitance boxes.

Facilities available at SEIL

M.Tech in Power Electronics and Power System

Our vision in starting an M.Tech Program in Power Electronics & Power System is to "Develop and maintain a high quality teaching and research environment in Power Systems, Power Electronics and Control and to emerge as a centre of excellence for contributing towards the society"

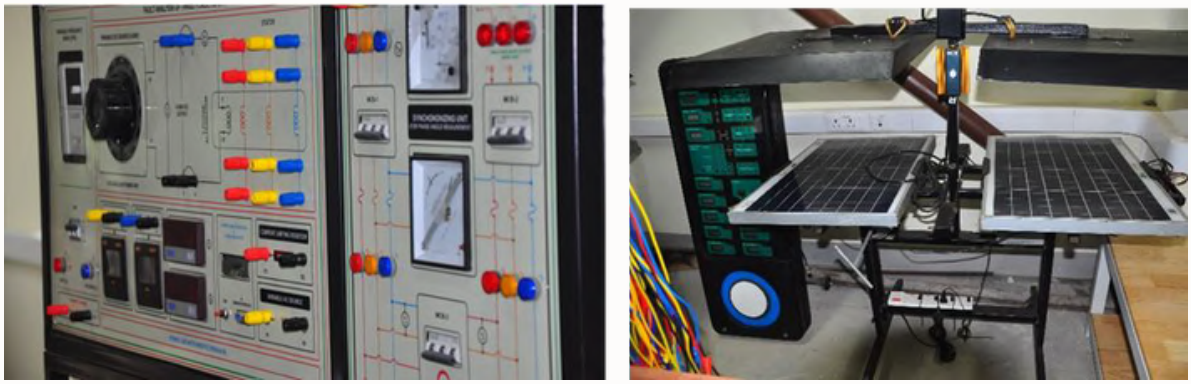
Topics in power electronics are essential for key enabling technologies and understanding of the diverse disciplines encompassed by power electronics - semiconductor devices, power converter control and its application in power systems and motor drives - is therefore important to all power engineers. The M. Tech curriculum is designed to train the students with adequate domain knowledge and skill-sets in Power Electronics & Power Systems and

related subjects along with the flexibility to choose interdisciplinary electives. Thoroughly designed course contents and hands-on laboratory exercises enable students to pursue successful career options in various research programs (higher studies) in Power Electronics / Power Systems/ Renewable Energy Systems and related areas, roles in design and development with government/ private organisations, employment in R & D organisations related to sustainable technologies etc.

The curriculum focuses on learning the concepts through design and development. Electrical engineering laboratories are well resourced with modern scientific equipment that are calibrated for accurate measurements. Well equipped laboratory facilities are installed for developing new design/testing and verifying an existing design or hardware modules. To provide more exposure towards industry standard software tools, we have research level licenses for simulation software's like PSCAD, DSA tools, Labview, Mathematica, ANSYS, MATLAB, etc.

Power Systems Laboratory

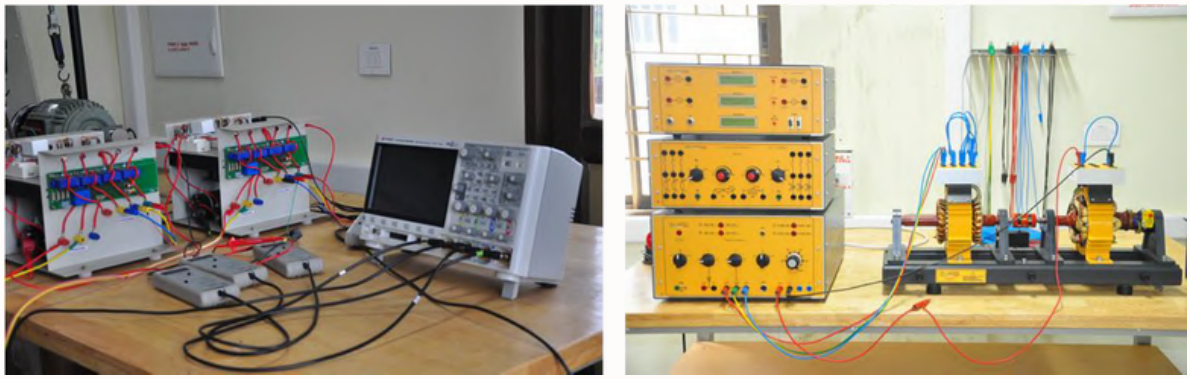
Power Systems Laboratory provides students with an environment to experiment on various aspects of power systems including safety and quality. Some of the facilities include: Fault simulator for studying and analysing various power systems faults, facility for studying parallel operation of alternators, 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, PSCAD,PSSE , DSA Tools software for power system analysis.



Power Systems Lab, Left: Alternator Fault Simulator With Grid Synchronization Facility, Right: Solar PhotoVoltaic Array Simulator.

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 assembly,controller boards, FPGA cards, High end Oscilloscopes with differential probes for high voltage and high current measurement, Hall effect voltage and current sensors, Solar array simulators, Motor- dynamometer setups, Bidirectional power supplies etc. Experiments are designed to enhance the hands-on skills in power converter design and development, design and fabrication of magnetics, open loop and closed loop control of power converters, power converter design for various applications etc.



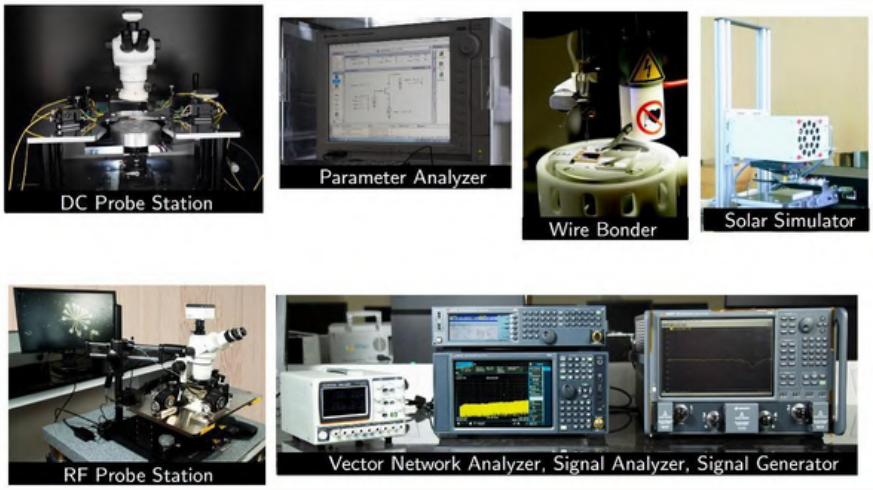
(Power Electronics Lab, Left: IGBT based Inverter Modules, DSO and Differential Probes, Right: Facility to Assembling and Test Various Machines)

Research Facilities

Laboratories / Research centres

Central Instrumentation Facility (CIF)

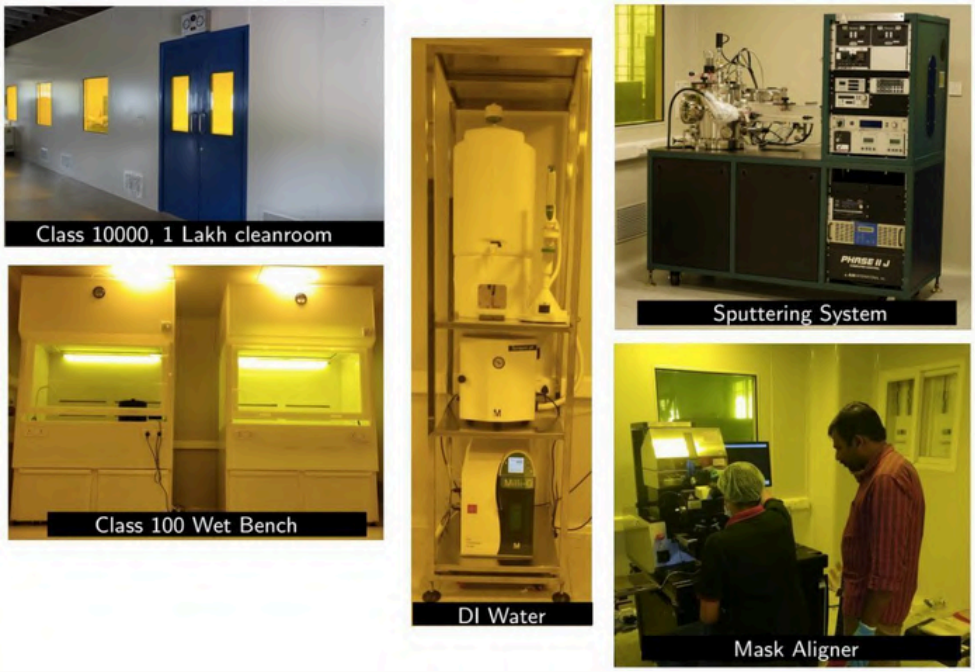
Electrical characterization facilities include DC probe station, RF probe station, parameter analyzer, wire bonder, vector network analyzer and signal analyzer, signal generator, solar simulator.



CIF Electrical Characterization Facilities

Central Micro-Fabrication Facility (CMFF)

Facilities include class 10000 1 lakh cleanroom, class 100 wet bench, DI water, sputtering system and mask aligner.



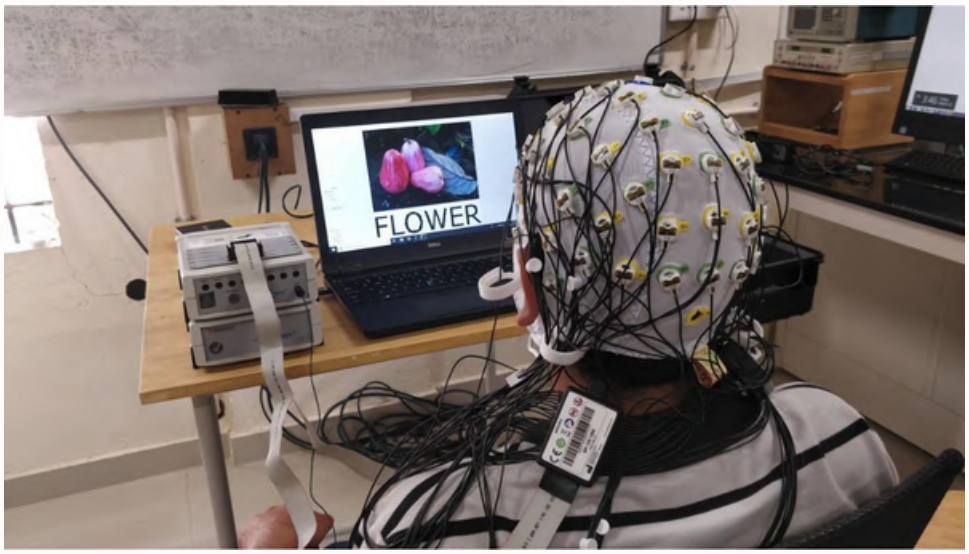
(CMFF Facilities)

Centre for Computational Imaging (CCI)

Facilities include 128-channel research ultrasound system, 128 channel 5-10 MHz piezo electric linear array probe, 256 channel 5-25 MHz CMUT linear array probe, tissue mimicking Doppler phantom with average flow velocity of at least between 3-60 cm/s and with possibility of pulsatile and constant velocity flow, Vitus Siu-3 portable ultrasound system and 64 channel 40 kHz airborne ultrasound system and Maxim 2084 16 channel ultrasound transmitter/receiver analog front end.

Brain Machine Interface Systems Laboratory (BMISL)

Facilities include 64-channel Electroencephalograph (EEG) Amplifier, EMOTIV EPOC+ 14-channel Wireless EEG, Muse 4-channel EEG, Mobile Workstation Dell 3520



Microwave monolithic integrated circuits lab (MMICL)

Major highlights of M.Tech in Power Electronics & Power Systems

The vision in starting an M.Tech Program in Power Electronics and Power Systems is to ”Develop and maintain a high quality teaching and research environment in Power Systems, Power Electronics and Control and to emerge as a centre of excellence for contributing towards the society”. Power electronics is a key enabling technology and understanding of the diverse disciplines encompassed by power electronics - devices, converters, control theory and its application in the power system - is therefore essential to all power engineers.

The primary objectives of the M.Tech. program in Power Systems and Power Electronics are to train the students with adequate domain knowledge and skill-set in Power Systems and Power Electronics and to prepare them for the following career options:

- Research programs (higher studies) in Power Electronics / Power Systems/ Renewable Energy Systems and related areas
- In design and development with major international companies or government agencies
- Obtain consultancy posts with leading contract consultant companies
- Employment in R & D organisations related to sustainable technologies
- Power electronic circuit design and fabrication industries
- Reputed companies who provide software and hardware solutions to the utilities
- Academic careers

Key learning outcomes

- Competent users of relevant equipments and software used for research as well as industrial design.
- Develop problem-solving skills
- Develop the ability to think logically and critically
- Develop a thorough understanding of current practices and its limitations and appreciation of likely new developments in the field of power electronics and power system engineering.
- Develop an appreciation for the challenges related to power electronics, power system, its control and realization.
- Participate in collaborative-multidisciplinary engineering / research tasks and work as a team member in such tasks related to Power system domain, giving due consideration to ecological and economical intricacies, and lead the team in specific areas.
- Responsible professional with intellectual integrity, code of conduct and ethics of research and serve towards the sustainable development of the society.

8.7 Environmental Sciences and Sustainable Engineering Centre (ESSENCE)

Major themes

Vision

Bring science, technology, and policymaking together to develop and demonstrate sustainable solutions for pressing socio-enviro-technical problems.

Mission

- Develop sustainable technologies and innovations using locally available resources in the areas of energy, water, food, agriculture, ecology, waste management, and pollution mitigation.
- Evaluate the nature of technology and its social/environmental impacts concerning the human modification of the natural world.

- Build and deploy computational resources to assess the impact of scaling up or developing new technologies on the three dimensions (economic, social, and environmental) of sustainability to appraise policy.
- Facilitate skill development and entrepreneurship to aid the deployment and scaling up of sustainable technologies.
- Collaborate with local communities to integrate and help sustain indigenous knowledge practices through language maintenance and revitalization.
- Become a credible nodal centre for exchanging scientific ideas, research, and innovation and evaluating the impact of deploying sustainable technologies at the local, regional, and national levels.

The Faculty

- **Dr. Athira P.**
- **Dr. Dinesh Jagadeesan**
- **Dr. P Gangadharan**
- **Dr. Sunitha Nayar**
- **Dr. Arun Rahul S**
- **Dr. Divya P.V.**
- **Dr. M Sabarimalai Manikandan**
- **Dr. Veena Venudharan**
- **Dr. Deepak Jaiswal**
- **Dr. Mintu Porel**
- **Dr. Sarmistha Singh**
- **Dr. R Venkataraghavan**

Resource Available

All the central facilities, such as SATCARD, CIF & CMFF, and HPC, are available for conducting research. Additionally, ESSENCE houses instruments for measuring leaf gas exchange rates and air quality.

Air quality measurement station

Portable Leaf gas exchange measurement

Academic Program

ESSENCE currently offers Ph.D./M.S. (by Research) programs.

Website:

For further information, please visit https://essence.iitpkd.ac.in/

8.8 Humanities and Social Sciences

The Faculty

Primary Affiliation

- **Dr. Amrita Roy, PhD** (Jawaharlal Nehru University)
- **Dr. Anoop George, PhD** (IIT Bombay)
- **Dr. Biswajit Sarmah, PhD** (IIT Guwahati)
- **Dr. Manav Khaire, PhD** (IIT Bombay)
- **Dr. Reenu Punnoose, PhD** (Newcastle University, U.K)
- **Dr. Rahul Choragudi, PhD** (Tata Institute of Social Sciences, Mumbai)
- **Dr. Sujatha G, PhD** (University of Madras)
- **Dr. Sudarshan R Kottai,** PhD (IIT Hyderabad)

Secondary Affiliation

- **Dr. Senthilkumar V,** PhD (IIT, Madras)

The Department of Humanities and Social Sciences (HSS) at IIT Palakkad comprises a team of eight faculty members who work on diverse research areas in Philosophy, Economics, English Studies, Linguistics, Psychology, Sociology, History, and Political Science. Currently, there are nineteen PhD research scholars and two postdoctoral fellows at HSS. We offer a range of elective courses for undergraduate and postgraduate engineering and science students and PhD-level courses for 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 include introductory level and advanced level courses (research courses) in the subject areas represented in the department. In addition, we also offer courses 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.

8.9 Mathematics

The Faculty

- **Dr. Arpan Kabiraj,** PhD (IISc, Bangalore)
- **Dr. M. Ashok Kumar,** PhD (IISc, Bangalore)
- **Dr. G. P. Balakumar,** PhD (IISc, Bangalore)
- **Dr. Gopikrishnan C. Remesan,** PhD (IIT Bombay - Monash Research Academy)
- **Dr. Jaikrishnan Janardhanan,** PhD (IISc, Bangalore)
- **Dr. C. R. Jayanarayanan,** PhD (ISI, Bangalore)
- **Dr. Lakshmi Sankar K,** PhD (Mississippi State University, USA)
- **Dr. Parangama Sarkar,** PhD (IIT Bombay)
- **Dr. Rohith Varma,** PhD (Chennai Mathematical Institute, Chennai)
- **Dr. Sarath Sasi,** PhD (Mississippi State University, USA)
- **Dr. Srijan Sarkar,** PhD (ISI, Bangalore)
- **Dr. Subhankar Dey,** PhD (University at Buffalo, USA)
- **Prof. Varadharajan Muruganandam,** PhD (IIT Kanpur)

The Department of Mathematics

The Department of Mathematics at IIT Palakkad is strongly committed to excellence in research and teaching. The fields of research of the faculty members include Algebraic Geometry, Commutative Algebra, Differential Equations, Functional Analysis, Harmonic Analysis, Several Complex Variables, Topology, Numerical Analysis and Mathematical Biology, Operator Theory, Mathematical Statistics, Probability, and Information Theory. We envision to have a fast and steady growth leading to a strong and diverse Mathematics community at IIT Palakkad. The PhD program of the department was started in 2017. There are currently 26 Ph.D students working in the department. The M.Sc (Mathematics) program was started in 2020. There are 10 and 18 students in the first year and second year respectively.

The M.Sc Program

The M.Sc Mathematics program envisions to train the students to pursue careers in both academia and industry. Besides providing a firm mathematical foundation, the curriculum also provides excellent opportunities for the students to gain exposure to and specialise in pure/applied mathematics, data science, theoretical computer science among many other allied subjects.

The curriculum offers 14 core courses and several elective courses, the latter to be selected from a vast number of options which are being constantly upgraded keeping pace with the challenging developments in research and ever demanding requirements of the industry. Another attractive feature of this program is that the students have an opportunity to do a project in lieu of some elective courses to acquire a wider knowledge and hand-on experience in a specific area.

The department strives to have a vibrant academic ambience through several academic initiatives like long-term and short-term visitors and student seminars. Apart from preparing students for academic pursuits, the Institute also has a placement cell to facilitate industry opportunities. There are 10 and 18 students in the first year and second year respectively.

8.10 Mechanical Engineering

The Department of Mechanical Engineering at IIT Palakkad is dedicated to academic excellence and cutting-edge research. With a strong foundation in fundamental and applied engineering sciences, the department strives to equip students with the necessary skills to tackle real-world engineering challenges. Our programs emphasize innovation, interdisciplinary learning, and industry collaboration to foster a holistic engineering education. The Department of Mechanical Engineering offers a four-year undergraduate B.Tech Program, two-year M.Tech programs, and research (MS and PhD) programs. The undergraduate curriculum mainly integrates the fundamentals of mechanical engineering along with electives concerning allied and general topics, including professional ethics. M.Tech at the PG level is offered in Manufacturing and Materials Engineering, Thermofluids Engineering, Design & Automation - emphasizing depth in fundamental and applied aspects with inquisitiveness. The Mechanical Engineering Department has three broad streams – Thermal and Fluids Engineering, Manufacturing and Materials Engineering, Design and Solid Mechanics.

The Faculty

- **Prof. A. Seshadri Sekhar,** PhD (IIT Madras)
- **Prof. T. Sundararajan,** PhD (University of Pennsylvania, USA)
- **Dr. Afzaal Ahmed,** PhD (NUS, Singapore)
- **Prof. Anand TNC,** PhD (IISc, Bangalore)
- **Dr. Anoop Akkoorath Mana** (IISc, Bangalore)
- **Dr. Arijit Hazra,** PhD (Max-Planck Institute of Multidisciplinary Sciences)
- **Dr. Buchibabu Vicharapu** (IIT Bombay)

- **Dr. Chaitanya Paramatmuni,** PhD (Imperial College London)
- **Dr. D. Chakradhar,** PhD (NIT, Warangal)
- **Dr. D. Kesavan,** PhD (IIT Madras)
- **Dr. Dinesh Setti,** PhD (IIT Delhi)
- **Dr. Ganesh Natarajan,** PhD (IISc, Bangalore)
- **Dr. Kali Prasad,** PhD (IIT Madras)
- **Dr. Kanmani Subbu S.,** PhD (IIT Kanpur)
- **Dr. Krishna Sesha Giri,** PhD (IISc, Bangalore)
- **Dr. K. V. N. Surendra,** PhD (IISc Bangalore)
- **Dr. Nelson Muthu,** PhD (IIT Bombay & Monash University)
- **Prof. Mayank Tiwari,** PhD (IIT Delhi) (Visiting Faculty from IIT Patna)
- **Dr. Pramod Kuntikana,** PhD (IIT Bombay)
- **Dr. Sagi Rathna Prasad,** PhD (IIT Madras)
- **Dr. Samarjeet Chanda,** PhD (IIT Madras)
- **Prof. Santhakumar Mohan,** PhD (IIT Madras)
- **Prof. Sovan Lal Das,** PhD (Cornell University, USA)
- **Dr. Soumya Mukherjee,** PhD (NIT Jamshedpur)
- **Dr. Vineed Narayanan,** PhD (IIT Madras)

The department actively engages in research across diverse domains, including:

1. **Thermal and Fluids Engineering:** Fluid Flow, Refrigeration & Air Conditioning, Renewable Energy, Alternative Fuels, Combustion, Droplets & Spray, CFD.
2. **Manufacturing and Materials Engineering:** Ultra-Precision Machining, Metal Matrix Composites, Machining, Micro Machining, Non-Conventional Machining, Abrasive Machining, Metal Forming, Experimental and Computational Plasticity across length scales, Digital twins for manufacturing, Additive Manufacturing, Surface Engineering, Welding, Characterization.
3. **Design and Solid Mechanics:** Robotics, Vibrations, Acoustics, Rotodynamics, Applied Mechanics, Fracture Mechanics, Elasticity, Nonlinear Elasticity and Viscoelasticity Contact Mechanics, Tribology, Underwater Vehicles.

The department is equipped with advanced instruments for research and teaching, including:

- Battery test system
- CNC Hybrid Micro Machine
- Compression Moulding Machine
- Computational Materials Processing

- Computerised IC Engine Test Set up
- Contact angle Measuring system
- Die sink EDM
- Dry Electro Polishing
- Environmental Chamber
- IR Camera
- Laser Diagnostic Equipment
- Laser marker
- LPBF 3D metal printer
- Micro Machining Center
- Micro Nano Indenter (Instrumented Indentation)
- Modular production system
- Piezoelectric Dynamometers (for Micro & Macro machining)
- Plasma Polishing Machine
- Precision Grinding Center
- Programmable Muffle Furnace
- Rolling Contact Fatigue Testing Machine
- Rolling Mill
- Stir Casting with Ultrasonic Cavitation
- Thermal Property measurement system
- Thermo Vacuum setup
- TIG, MIG Welding setup
- Ultra-precision diamond turning
- Universal Testing Machine (100 kN)
- Universal Tribometer
- Wire Arc Additive Manufacturing
- Wire Cut EDM

M.Tech in Manufacturing and Materials Engineering

The primary aim of this M. Tech program is to prepare graduate students with the skills needed to tackle challenges in research and industries focused on manufacturing and materials. Additionally, the program emphasizes on enhancing research abilities and fostering a passion for pursuing doctoral studies. Core courses include Advanced Engineering Materials, Advanced Manufacturing Processes, Mechanics of Machining, Computer Integrated Manufacturing, Mechanical Behaviour of Materials, and Computer Aided Metrology—electives in the curriculum offer specialized knowledge tailored to individual interests. The first two semesters involve extensive coursework, while the third and fourth semesters are dedicated to project work.

M.Tech in Design & Automation

The M.Tech in Design & Automation within the Department of Mechanical Engineering at IIT Palakkad offers a well-structured curriculum that prepares students to become leaders in advanced mechanical design and automation. With a focus on innovative design solutions and industry readiness, the program combines rigorous theoretical coursework, practical lab sessions, and project work to equip students with the skills needed to solve complex engineering challenges. In the first semester, students build a foundation in mathematics, solid mechanics, vibrations, finite element methods, and simulation techniques, using advanced computational tools like Ansys/Abaqus. The second semester advances into specialized subjects such as automation, controls, and dynamics, with laboratory courses that offer practical experience in instrumentation and control. This semester also includes electives, allowing students to tailor their learning towards their career goals. The electives are designed in such a way that students can choose to specialize in solid mechanics, dynamics/vibration, product design, and design for manufacturing, etc.

M.Tech in Thermofluids Engineering

The M.Tech in Thermofluids engineering is intended to provide a deep understanding of energy conversion processes in mechanical and allied industries and to highlight the environmental issues associated with energy conversion. With carefully crafted core courses, the basic understanding, as well as advanced concepts on heat transfer, fluid mechanics and thermodynamics, will be strengthened. The program will also train students in theoretical and experimental methodologies to find solutions to complex engineering problems dealing with energy conversion and related environmental issues. While the core courses provide a strong foundation on energy conversion and related solution methodologies, the elective courses attempt to develop a broad perspective on many upcoming energy technologies. Green and renewable technologies such as solar power, wind turbines, biomass utilization, nuclear power, and clean coal technologies will be covered, apart from describing newer fuel options such as hydrogen, CNG, and ammonia. With 10 courses covered in the first two semesters, the third and fourth semester curriculum involve completing a one-year industrially relevant project work. Options for carrying out the project in industry are also available.

In addition to this, for conducting advanced research in engineering, IIT Palakkad has set up different central facilities for experimental and theoretical studies, such as the High-Performance Computing Cluster, Central Instrumentation Facility (CIF), and Central Micro Fabrication Facility (CMFF).

8.11 Physics

The Faculty

- **Dr. Akshay Bhatnagar,** PhD (IISc, Bangalore)
- **Dr. Amit Kumar Pal,** PhD (Bose Institute, Kolkata)
- **Dr. Bibhu Ranjan Sarangi,** PhD (RRI, Bangalore)
- **Dr. Jayakumar Balakrishnan,** PhD (National University of Singapore)
- **Dr. Kusum Dhochak,** PhD (TIFR, Mumbai)
- **Dr. Prithvi Narayan P,** PhD (TIFR, Mumbai)
- **Dr. Projjwal Banerjee,** PhD (University of Minnesota, Minneapolis, USA)
- **Dr. Soham Manni,** PhD (Georg-August-Universitat Gottingen Germany)
- **Dr. Uma Divakaran,** PhD (IIT Kanpur)
- **Dr. Vishwas V,** PhD (JNCASR Bangalore)
- **Dr. Moumita Nandi,** PhD (SINP Kolkata), Inspire Faculty
- **Dr. Swaroop Sahoo**, PhD (Colorado State University, USA)
- **Dr. Debarati Chatterjee,** PhD (IISc, Bangalore)
- **Dr. Ajeesh M. Omanakuttan**, PhD (Max Planck Institute for Chemical Physics of Solids)
- **Prof. C Vijayan** (Honorary Professor)

The Department 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 11 Faculty members , 2 Inspire Faculty, and 1 Post-Doctoral Researcher in the Department, engaged in various research projects in several topical and multidisciplinary topics covering the following 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

In July 2017, the Department started its dedicated PhD program, and at present a total of 19 students are pursuing research in these exciting fields. Besides its thriving research activities, the Department also runs a two year M.Sc program in Physics, and supports in training young Engineering undergraduate students in basic sciences.

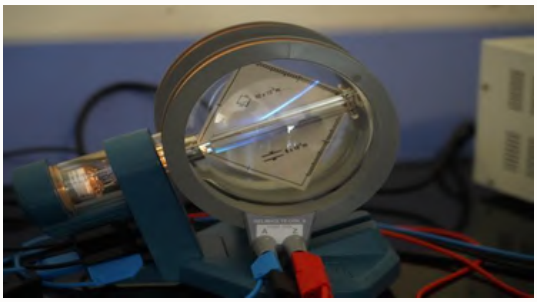
M.Sc Program in Physics

Kick-starting from July 2019, the two years (four semesters) M.Sc program in Physics is now open to students with Bachelor's degree in basic sciences with Physics as a subject for at least 2 years / 4 semesters, and Mathematics for at least 1 year / 2 semesters. The selection process is based on the national level "Joint Admission Test for M.Sc" (JAM) conducted by the IITs. The four semester program has core-theory courses in the first two semesters emphasising the fundamentals of the subject, and laboratory courses which allow the students to explore and familiarise themselves with classic experiments in the field. In the third and fourth semester, the students will get an opportunity to explore advanced electives (theory) and laboratory courses, which are in the forefront of research, along with a yearlong project guided by faculty members experienced in the respective field. The elective courses and the projects offered by the Faculty are at par with the current worldwide trends in research and industry. The course structure has been formulated to enable students to pursue research in leading national and international universities and research institutions, as well as to explore jobs in research and development sectors.

Experimental Facilities

The Department 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 categorised 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.

In addition to this, for conducting advanced research IIT Palakkad has set-up different central facilities namely Chandra High Performance Computing Cluster, Central Instrumentation Facility (CIF) and Central Micro Fabrication Facility (CMFF). Other Central facilities in Materials and Manufacturing, and Data Mining will be operational soon. Details of the available central facilities at IIT Palakkad are listed in section **'Central Research Facilities at IIT Palakkad'.**




UG/ PG Lab of the discipline of Physics

9. OTHER FACILITIES

9.1 Institute Library

As the informatics centre 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 collections of non-printed materials such as CD-ROM, scientific kits, kindle e-reader etc. The library opened its doors to the students, faculty and staff in August 2015 with a collection of 700 printed books (textbooks, reference, popular sciences and literature) which has grown to more than 8600+ and a number of e-books have also been added. The library also has the support of PM-ONOS (PM-One Nation One Subscription) to fulfil access to maximum e-journals 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-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 search, renew, reserve books through Online Public Access Catalogue (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 the Central Library of IIT Palakkad are also registered with the National Digital Library sponsored by the Ministry of Education (MoE) and coordinated by IIT Kharagpur.

To know more about the library, please visit https://lib.iitpkd.ac.in/.

9.2 High Performance Computing Cluster (HPC)

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:

1. Understanding and designing materials with novel physical properties by performing atomistic quantum mechanical simulations.
2. Design of nanoscale transistors for next generation electronic applications.
3. Design of novel bio-molecules with applications in medicine.
4. Design of large structures such as bridges and buildings.
5. Performing computational fluid dynamic simulations.
6. Understanding the process of heat transfer in complex systems such as engines.
7. Solving non-equilibrium dynamics in quantum Hamiltonians.
8. Understanding mechanical properties of disordered solids and equilibrium properties of metastable liquids.
9. Computational studies on the transition metal catalyzed reactions.

Recently we have installed a new supercomputing facility "Madhava", to empower research and innovation across disciplines. This facility has a computing power of around 3000 cores and 200 TFLOPS (in terms of CPU) and 8 latest NVIDIA H100 GPU cards with a combined performance of 360 TFLOPS. Combined with a total storage of half petabyte, this facility can handle a wide range of problems, including material design, drug discovery, protein folding, climate modeling, big data analytics as well as advancing fundamental understanding in science and engineering. This facility is named after Madhava of Sangamagrama, the brilliant 14th century mathematician from Kerala (near Irinjalakuda) who laid the foundation for series expansions, this facility honors his legacy as a pioneer of mathematical and computational methods.

9.3 Central Instrumentation Facility (CIF) and Central Micro-Nano Fabrication Facility (CMFF)

Materials are the backbone of technological advancement. Often new technology is driven by design and discovery of new materials. To unfold the potential of new materials one has to investigate all its physical and chemical properties which may lead to fabrication of new devices using it. One of the thrust areas of research in IIT Palakkad is to develop new functional molecules and materials; fabricate nano-scale machines using them. In 2019, 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. In 2021, a material synthesis unit (MSP) was established in Nila Campus under CIF.

Functionally, the facility is grouped under the themes of Synthesis, Characterization and Fabrication.

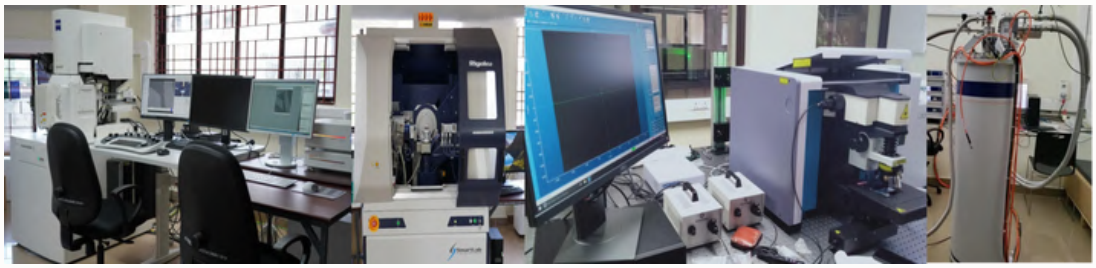
CIF (Synthesis) – Materials Synthesis and Processing (MSP) Lab

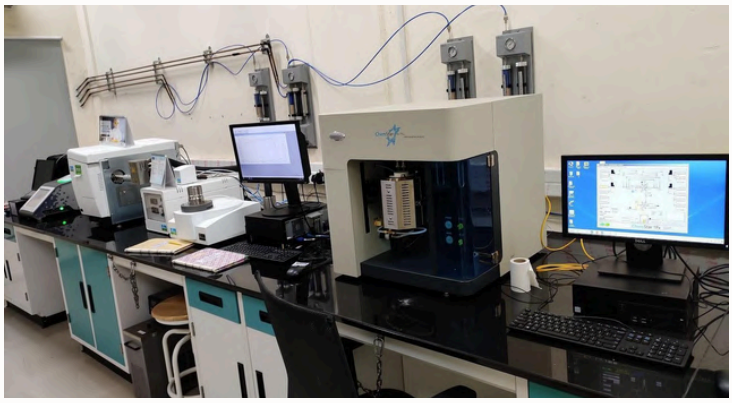
The objective of this unit is to support the materials research by pooling in equipment meant for physical and chemical synthesis of materials at non ambient conditions e.g. high temperature (up to 1800oC), under high vacuum or different gas environment (O2, Argon, N2 and reduced atmosphere) and under high mechanical energy. Different kinds of high temperature furnaces, ball milling, quartz tube sealing stations are installed in this facility. The unit started operating from Nila Campus in January, 2021. The facility is equipped to synthesize a wide variety of oxide, metallic, intermetallic compounds in single and polycrystalline form for different kinds of applied and basic research.

The equipment installed in the unit are listed below:

- High Temperature Chamber furnace with Programmable PID temperature Controller. (Tmax = 1700 oC)
- Mono Arc Melting Furnace.
- Ball Mill
- Rapid Thermal Processing Unit (Gas flow furnace, Tmax = 1100oC)
- Muffle furnace (Tmax = 1000oC)
- Quartz Tube Sealing Station

CIF (Characterization)





Different sophisticated equipment installed in the CIF (Characterization) unit facilitates chemical, structural and electrical characterization of the samples. This facility houses several characterization techniques to investigate complex mixtures of molecules produced during chemical reactions, bulk materials in single and polycrystalline form as well as in thin film form. A wide range of features also provides scope for conducting many interesting in situ and kinetic experiments.

Structural information of materials such as crystallinity, microstructure, surface morphology, roughness for powder and thin film samples upto 1500oC can be analysed using X-ray diffraction. For microscopy, the facility houses a state of the art High Resolution-Field Emission Scanning Electron Microscope (HR FEG - SEM) which can perform standard imaging, backscatter diffraction (EBSD) for studying the texture in single and poly-crystalline materials and energy dispersive x-ray spectroscopy (EDS) for studying chemical composition. E-beam lithography for fabricating micro-level devices for electronics/communications applications can be performed at high precision using the SEM. The facility has inducted a confocal optical microscope to study materials and biological samples under visible wavelength. For chemical characterization of materials different spectroscopic techniques at different wavelength ranges are housed in this facility e.g. NMR, Raman Spectrometer, FTIR, Mass Spectrometer etc. For studying thermal stability of the materials and reactions happening in the material a Thermogravimetric Analyzer is installed in this facility which is coupled with a Mass Spectrophotometer.

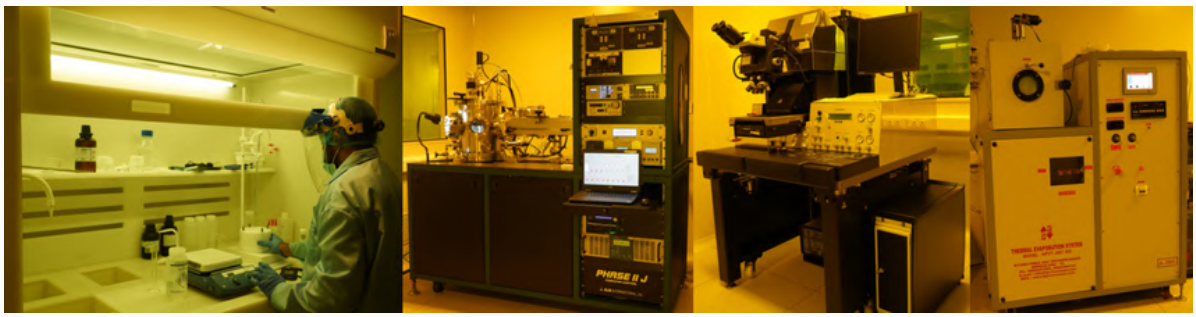
One of the necessary arms of device/material characterisation is electrical characterisation. This is essential to determine the electronic behaviour of diverse samples across multiple disciplines. To this end, we have the facilities to perform electrical characterization from low to high frequencies. CIF has a DC probe station and the semiconductor parameter analyser (SPA), using which high-precision measurement of different electrical characteristics (such as, current-voltage, capacitance-voltage, current-time, capacitance-time) at low frequencies, is possible. High-frequency measurements are possible using the RF probe station, vector network analyzer (VNA), RF signal analyzer, and RF signal generator. High-frequency signals can also be observed in time-domain on an ultrafast oscilloscope. Recently the facility has inducted a closed cycle cryostat to measure electrical properties down to 300 mK temperature under 12 Tesla magnetic fields.

The equipment installed in the unit are listed below:

- Fourier Transformed IR Spectrophotometer
- Automated flow Chemisorption
- Semiconductor Parameter Analyser
- Manual DC Probe Station
- Manual RF Probe Station
- Vector Network Analyzer
- Signal Analyzer
- Gas Chromatograph
- Analog Microwave Signal Generator
- Thermogravimetric Analyzer coupled with Mass Spectrometer (TG-DTA-MS)
- High Performance Liquid Chromatography

- Liquid Chromatography Mass Spectroscopy
- Nuclear Magnetic Resonance Spectrometer
- Non-Contact Optical Profilometry
- Universal Hardness Tester
- Raman spectrophotometer
- Scanning Electron Microscopy (SEM) with EDS, EBSD and Lithography attachment
- X-ray Powder/Thin film Diffraction (XRD)
- Wire Bonder
- Mixed signal digital storage oscilloscope
- 64-channel Electroencephalograph (EEG) Data Acquisition System.
- Nuclear Magnetic Resonance Spectrometer
- Semiconductor device analyzerVTI
- PCB prototyping machine with PTH facility
- Confocal Microscope

CIF (Fabrication): Central Micro-Nano Fabrication Facility (CMFF)



The Central Micro-Nano Fabrication Facility has class 100000 and class 10000 cleanrooms, well-equipped for fabrication of devices. The cleanroom houses class 100 polypropylene fume hoods, a deionized water plant, an RF sputtering system, and a mask aligner. The RF sputtering system can deposit thin layers of metals and non-metals onto a substrate. The mask aligner can demarcate micrometer-scale patterns onto the substrate using photolithography. This system is capable of performing multilevel photolithography on top and bottom side of substrates, with minimum features in the sub-micron range. Realisation of microstructures is possible using wet-chemical methods performed inside the fume hoods. The deionized water plant provides the high-resistivity water needed during the processing. Recently, we have also added an optical microscope, a three-port glove box, and a critical point dryer (CPD) to this facility.

Broadly, research is proposed in areas including (but not limited to): (i) Design, fabrication and characterisation of 2D spin devices (including GMR devices), heterostructures of 2D materials and perovskites; (ii) Design, fabrication and characterisation of CMOS-compatible photodetectors; (iii) Fabrication and characterisation 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 characterisation of GaN- based mm wave devices and circuits; (vi) Fabrication and characterization of Perovskite solar cells.

The equipment installed in the unit are listed below:

- Mask Aligner
- Polypropylene Fume Hoods
- De-Ionized Water Plant
- RF/DC/Pulsed DC Sputtering System
- Spin Coater
- Optical Microscope
- Three-port glove box
- Critical point dryer (CPD)

9.4 Career Development Center (CDC)

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.

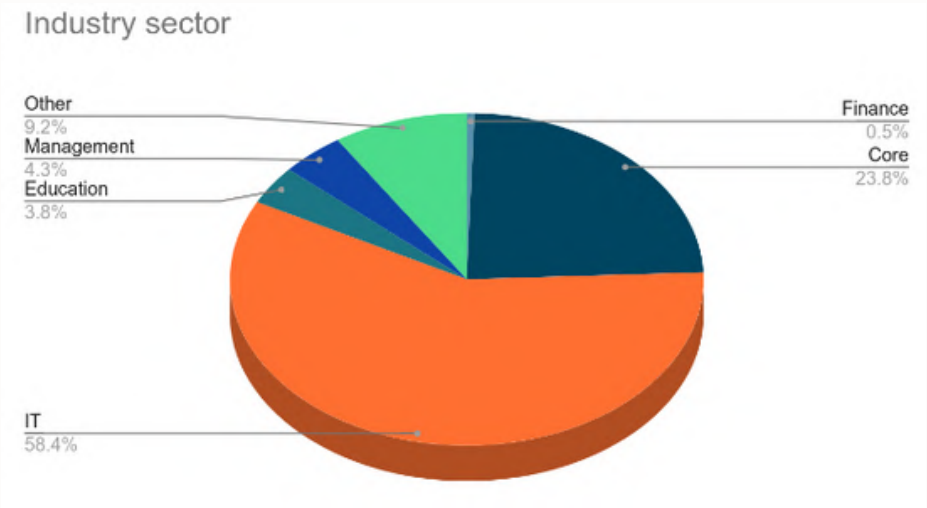
IIT Palakkad witnessed a perfect culmination of the campus placement year after year in which several offers were received from coveted MNC's with excellent profiles, as desired by the students. In addition to these, several PSUs visit the campus for recruitment each year.

The statistics given below give a quick glimpse of the campus placement for both UG and PG students:

Batch	2020-2021	2021-2022	2022-2023	2023-24
Batch Size	163	251	293	325
No. of students registered in the CDC portal for placement	115	193	211	204
No. of offers	120	208	206	185
No. of students placed	97	176	190	152
No. of Companies participated in the campus process	110	215	158	168
Placement percentage (based on the number of Students Placed)	84.34	91.19	90.05	74.51
No. of PPO (pre-placement offers)	6	26	38	25
Average CTC INR (in Lakhs)	11.42	13.93	13.95	13.89

Some of the notable companies that have offered employment and internship opportunities to our students include Air India, Amazon, Turing, Texas Instruments, Arista Networks, Strand Life Sciences, MathWorks, Adobe, Webstaff, GE Healthcare, Accenture Japan, Manappuram Finance, Zeuron, Apex Plus Technologies, AMD, Sprinklr, Ceremorphic Technologies Pvt. Ltd., WSP, GE Digital, GlobalLogic, HCL Technologies, Synopsys, Itron, ITS Planners, Merilytics, L&T, ZS Associates, LTI Spark, MAQ Software, Maruti Suzuki, MediaTek, HPE, Nation with Namo, Mahindra & Mahindra, SEDEMAC Mechatronics, Saint-Gobain Research and Development, Intuit, MoneyForward, VA Tech Wabag, Tata Communications, Indexnine, Flipkart, Versa Networks, Wabtec, and many more.

Industry Sector Wise Placement Distribution (2023-2024)



9.5 International and Alumni Relations (IAR)

The Office of International and Alumni Relations at IIT Palakkad is responsible for International collaboration, admissions, and Alumni related activities.

The activities of the Office of International Relations are

- Initiating faculty collaboration and signing MoUs.
- Facilitating student exchange, research internships, and study abroad programs.
- Creating a welcoming and inclusive environment for international students through dedicated efforts.
- Supporting joint research and joint doctoral programs.
- Bringing global opportunities for students and faculty.
- Promoting IIT Palakkad's programs to the international community.
- Enabling direct admission for international students through ASEAN, SII, ICCR, embassies, and other channels.

- Hosting delegations from foreign universities and embassies.
- Maintaining a well-organized database for international collaborations.
- Ensuring smooth communication and support for international students and faculty.
- Strengthening global engagement through strategic partnerships.

The activities of the Office of Alumni Relations are,

- Alumni-led mentorship programs for career guidance and academic support.
- Interactive sessions where alumni share industry experiences.
- Celebrating alumni achievements through newsletters, social media, and website features.
- Sending personalized greetings on milestones, achievements, and special occasions.
- Featuring alumni success stories and institutional updates in the annual newsletter.
- Showcasing career insights, internship experiences, and industry trends.
- Sharing off-campus job openings and internship opportunities with students.
- Encouraging alumni to contribute opportunities from their workplaces.
- Strengthening networking opportunities for professional collaboration.
- Hosting reunions, networking events, and informal gatherings.
- Encouraging alumni participation in campus activities and institutional initiatives.
- Enhancing student-alumni interactions for mentorship and guidance.
- Strengthening alumni relationships through recognition and engagement.
- Ensuring seamless interaction with alumni and students.
- Maintaining a well-organized and impactful alumni network.

9.6 TECHIN and CSquare Innovation

Technology Innovation Foundation of IIT Palakkad (TECHIN) serves as the incubator arm of IIT Palakkad and recognized as a Technology Business Incubator by Startup India. TECHIN is dedicated to nurturing early-stage startups and aspiring entrepreneurs, guiding them on their journey to becoming successful and sustainable businesses. The mission is to provide comprehensive support to innovators, including financial assistance, expert mentorship, skill development, business support services, and access to state-of-the-art R&D facilities. Through these resources, we aim to foster innovation and entrepreneurship, helping startups navigate the challenges of the business world and achieve their full potential. At TECHIN, we are committed to creating a thriving ecosystem where innovative ideas can flourish and transform into impactful ventures.

TECHIN organizes a variety of national events throughout the year, including pitch competitions, workshops, hackathons, and grand challenges, to nurture promising ideas and innovative solutions across India. These initiatives aim to achieve commercial success while also striving to create a positive societal impact.

Technology Verticals

- **SaniTech:** Dedicated to advancements in water, sanitation, and hygiene, aiming to develop innovative solutions that improve public health and environmental sustainability.
- **MedTech:** Focused on the biomedical technology sector, striving to drive innovations in healthcare and medical devices to enhance patient care and health outcomes.
- **Technology Innovation Center (TIC):** Encompasses a broad spectrum of technology domains, fostering innovation across various industries and supporting the development of cutting-edge technological solutions.

Support Offered to Startups

- Incubation & Acceleration
- Funding & Financial Support
- Technical & Business Mentoring
- Marketing, IP, Legal Support
- R&D, Labs & Testing Support
- Go To Market and Outreach
- Office Space & Infrastructure
- Training and Workshops
- Investors Connect
- Field Trials & Evaluation Support
- Market Research and Consultancy
- Commercialization & Technology Transfer

Dashboard

- Startups Incubated - 35+
- CSR funding Raised - 20 Cr+
- Revenue generated by startups - 15 Cr+
- Startup Valuation - 100 Cr+
- Jobs created- 100+

- Startups' Geographical Distribution - 10+ States
- Personnel Skilled- 150 +
- Mentors/Experts - 50+
- Programs & Cohorts Completed - 50+
- Innovations Evaluated - 500+

CSquare Innovation Centre

IIT Palakkad has put in place a strong ecosystem to encourage innovation and entrepreneurship activities among the students, staff and faculty. The Csquare Innovation Centre is a well-equipped facility for the fabrication of any prototype, proof-of-concept designs or project work in soft and hard materials in any interdisciplinary field. Facilities include: 3D printers, CNC Laser cutter, CNC Milling Machine, CNC Router, 3D Scanner, CNC Lathe, Power Hacksaw, Planner, Band Saw, Table saw, Plasma cutter and several hand tools. Software required like Fusion 360 are also available. Several new facilities for PCB fabrication, component assembly, reflow soldering, electronic workbenches and welding are in the process of being set up. Students are encouraged to develop new products and initiate startup activities. In addition, the Centre provides infrastructure for various courses and student-run technical clubs to conduct their activities. Several invited talks, workshops and short-term courses on innovation and entrepreneurship are conducted.

10. HOSTELS AND STUDENT WELLNESS

Hostels

IIT Palakkad houses six hostels: four in the tranquil Nila Campus and two in the serene Sahyadri Campus. Students are provided with double/triple sharing accommodation in Nila Campus, while rooms at Sahyadri Campus are either single or triple occupancy rooms.

Our hostels are equipped with well-appointed rooms, water heaters, RO-based drinking water systems, heavy-duty washing machines, and both WiFi and LAN network connections, ensuring convenience and connectivity. Additionally, a spacious dining hall, a well-equipped

recreational area, an indoor games area, and a fitness centre are readily available for leisure and physical activities. Each room is equipped with either WiFi or LAN connectivity, offering seamless online access. Additionally, common rooms in every hostel provide a space for relaxation, equipped with a television, newspapers, and a selection of magazines chosen by the student body.

Student wellness

Anti-ragging measures

The motto of the Institute is zero tolerance to ragging. The students and parents are sensitised 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

Institute Counselling Service(Mitra) 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 team comprises three experienced counselors—two female and one male—who are qualified Clinical Psychologists and available to support students as needed. Additionally, Amaha, an online mental health platform, offers therapy and self-care tools to students 24/7. Trained student volunteers on campus also provide peer support.

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

IIT Palakkad has an outpatient clinic with a medical officer, staff nurse and 24 hours ambulance services. 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, Avitis, Palakkad Institute of Medical Sciences, Lakshmi Hospital, Trinity Eye Hospital and Thangam Hospital for cashless medical

attention. Students can also go to the hospitals of the Ahalia Foundation for treatment as outpatients. Institute Clinic is operational in the Nila campus.

Sports facilities

IIT Palakkad is continuously improving its sports and games facilities. Good facilities exist for football, volleyball, basketball, table tennis, badminton and cricket. There is a resident Physical Training Instructor 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.

11. The Student Affairs Council (SAC)

The SAC of IIT Palakkad, established in 2016, is the supreme student-body council which takes all the pivotal decisions, in association with the institute, and suggests policies whenever necessitated, concerning the welfare of the whole of the student community of IIT Palakkad. The SAC, headed by the Student General Secretary, consists of eight student-elected representatives who passionately work together towards transcending the institute in a plethora of fields and enhancing the student life at the institute. With the aforementioned view, SAC consistently promotes the objectives of fostering curricular, co-curricular and extracurricular activities for the holistic development of the students of IIT Palakkad. SAC is an indispensable part of our institute and has been instrumental to the growth and development of the institute since its inception.