

INDIAN INSTITUTE OF TECHNOLOGY PALAKKAD
PALAKKAD - 678557

Information Brochure (2019 August Semester)
(for candidates wishing to join Research Programmes)

Important Dates⁺

Advertisement to Appear	March 20, 2019
Application Portal Opens	March, 20, 2019
Last date for submission of application online	April 19, 2019
Test and Interview	June 3 to June 22, 2019
Selection list to appear	June 26, 2019
Last date to issue admission letters	July 2, 2019
Date of Joining	July 15, 2019

⁺While all efforts will be made to stick to these dates, you are advised to consult our home page and check for any changes in the dates that may be announced there.

Important Note

In situations which are not covered or made clear in this document, an appropriate decision will be taken by the Dean (Academic Research) after examining the situation carefully. His/her decision on the matter will be final.

Important Guidelines for Ph.D. & M.S. (Research) Application

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

General

1. The Institute

The Indian Institute of Technology Palakkad (IITPKD) is established as an autonomous institute of national importance by the Government of India. It is currently located inside the scenic Ahalia Integrated Campus, Kozhipara, Palakkad, 678557. Considering that the IIT is in its infancy, good facilities are available in its present campus, and more are being setup/planned. Land for the permanent campus was made available by the Government of Kerala near the Sahya mountains, and construction activities have already started.

IITPKD conducts B.Tech. programs in Civil, Electrical, Mechanical and Computer Science and Engineering, and is starting its M.S.(research) and Ph.D. programs in July 2017.

Research Areas and facilities available/planned.

Areas in which research is being carried out, and the details of the existing facilities are given below.

1) Chemistry:

Biophysical chemistry and molecular dynamics simulations, Mechano-chemistry, Equilibrium and non-equilibrium statistical mechanics of soft matter, Structure and dynamics of polymers and supramolecules, Nanostructures for Biomedicine, Materials Chemistry and Heterogeneous Catalysis, Organic macromolecules - Design, Synthesis and Applications.

Research facilities to carry out both theoretical and experimental work are available. A High Performance Computing Cluster (HPC) consisting of 64 compute nodes, each having a dual 12-core Intel processor running at 2.2 GHz with 4 GB of RAM per core is available for faculty, research staff and students at IIT Palakkad to investigate complex research problems in science and engineering. A well-equipped chemical synthesis lab is available for the research in

experimental chemistry. Analytical facilities include chromatography and spectroscopy equipment such as HPLC, LCMS, TG-DTA-MS, Bench-top NMR, FT-IR, Chemisorption, UV-vis and Fluorescence spectrophotometer. In addition to this, major research equipment such as X-ray diffractometer, Raman spectrophotometer and an electron microscope will be installed very soon at the Central Instrumentation Facility of IIT Palakkad.

2) **Civil Engineering:**

a. **Structural Engineering:**

(i) Adaptive passive control including base isolation to structural vibration problem, optimal feedback control and related study on stability, robustness, time delay and spillover phenomena, study the observability and controllability of structural system from the sensor output data, testing protocol to reproduce the prototype behavior.

(ii) Cold-formed steel structures.

b. **Water resources engineering:** Climate change and climate variability impacts on water resources; Study and forecasting of extreme events; Nonpoint source pollution analysis; Hydrologic and water quality modelling.

c. **Building Materials and structural systems:** Performance assessment and optimization of special concretes for structural systems such as FRC & SCC; development of design methodologies for structural systems using high performance concrete; sustainable building materials.

d. **Environmental Engineering:** Water and wastewater treatment; microbial fuel cells; electrochemical treatment techniques.

The research facilities available:

Structural Engineering: 100 kN and 500 kN Servo Hydraulic Universal Testing Machines; Actuators: 100 kN, 250 kN, and 500 kN; 2D and 3D testing frames; data acquisition systems, Controlled UTMs : 300 kN and 3000 kN, Speed Control motor

Material characterization: Servo hydraulic compression / flexural testing system 3000 kN, 300 kN, 100 kN, 15 kN; SCC testing

General computational facilities: Various analysis and design Softwares, Finite Element Method software, Spatial data analysis softwares, and High performance computing cluster of the Institute.

General workshop: Lathe, milling, grinding and drilling machines, welding, power tools etc.

3) Computer Science & Engineering:

Algorithms and complexity, Graph Theory, Combinatorics, Type theory, Functional Programming and Proof Assistants, Machine Learning, Deep Learning, Reinforcement learning, Optimisation, Computational biology, Wireless Networks, Social Networks, Computer architecture, Hardware security, Internet of Things, Reconfigurable computing, Design Automation and validation, Cyber Physical Systems.

4) Electrical Engineering:

i. Antennas, microwave engineering and radar systems

Microwave and Millimeter wave integrated circuits including Antennas, Radio Frequency MEMS, Microwave Engineering, Microwave Remote Sensing, Phased array Radars, Digital Beamforming radars.

Facilities- Vector Network Analyzer, Spectrum Analyzer, Signal Generator, RF Probe station, Anechoic Chamber [all operating up to 40 GHz], PCB making systems

Softwares: HFSS, Cadence

ii. Communication and signal processing

Wireless communication, design and analysis of next generation cellular systems, cooperative communications, compressed sensing, statistical signal processing (detection and estimation theory), information and coding theory, machine learning for communication.

iii. Nanoelectronics, Plasmonics & Semiconductor Devices

Research, broadly, in semiconductor devices and modeling, nanoelectronics, plasmonics/optoelectronics, development of instruments for experiments in nanoelectronics.

Facilities - High performance computing cluster for multiscale simulation.

Central Micro/nanofabrication Facility & Central Instrumentation Facility which are equipped with various equipments for clean room fabrication and characterisation (structural, material and electrical) of semiconductor devices: UV and e-beam lithography, spin-coater, fumehoods, sputtering; scanning electron microscopy, optical profilometer, Raman spectroscopy, DC and RF probe stations, semiconductor parameter analyzer, vector network analyzer, solar simulator

Softwares - Sentaurus, Cadence

iv. Biomedical Signal Processing and Imaging

Brain-Computer Interface Systems

Facilities- EEG data acquisition systems, Ultrasound research platform, FPGA-Microcontroller boards, Airborne ultrasound system

5) Mathematics:

Several Complex Variables

6) Mechanical Engineering:

Engine modelling/control, Optical diagnostics in combustion, Fracture mechanics, Computational fluid dynamics & turbulence, manufacturing, materials and tribology.

Facilities: Engine research facility, laser diagnostic lab, High performance computing cluster, 3D printing, material characterization facility etc.

7) Physics:

Quantum information theory, Non Equilibrium quantum systems, Physics of soft materials: Theory and simulations, Plasmonic systems: Experiments and Numerical simulations. Transport studies in 2D materials and perovskites.

AdS/CFT correspondence & Quantum Field Theory. Single crystal growth of novel magnetic and electronic materials and magnetic, transport, thermodynamic investigation of them at low temperature and high magnetic field. Tuning of magnetic and electronic ground states by external perturbations like pressure.

8) Humanities and Social Sciences:

Economics: Development Economics

Philosophy: Continental Philosophy, Phenomenology and Existentialism

Linguistics and Culture Studies: Sociophonetics, Experimental Phonetics, Phonological Language Acquisition. Culture Studies, Indian Cinema, Gender

Research Areas available for 2019 Admission

1. Chemistry:

Biophysical chemistry and molecular dynamics simulations, Mechano-chemistry, Structure and dynamics of polymers and supramolecules, Nanostructures for Biomedicine.

2. Civil Engineering

a. Structural Engineering:

(i) Adaptive passive control including base isolation to structural vibration problem, optimal feedback control and related study on stability, robustness, time delay and spillover phenomena, study the observability and controllability of structural system from the sensor output data, testing protocol to reproduce the prototype behavior.

(ii) Cold-formed steel structures.

b. Water resources engineering: Climate change and climate variability impacts on water resources; Study and forecasting of extreme events; Nonpoint source pollution analysis; Hydrologic and water quality modelling.

c. Building Materials and structural systems: Performance assessment and optimization of special concretes for structural systems such as FRC & SCC; development of design methodologies for structural systems using high performance concrete; sustainable building materials.

d. Environmental Engineering: Water and wastewater treatment; microbial fuel cells; electrochemical treatment techniques.

3. Computer Science & Engineering:

Algorithms and complexity, Graph Theory, Combinatorics, Type theory, Functional Programming and Proof Assistants, Machine Learning, Deep Learning, Reinforcement learning, Optimisation, Computational biology, Wireless Networks, Social Networks, Computer architecture, Hardware security, Internet of Things, Reconfigurable computing, Design Automation and validation, Cyber Physical Systems.

4. Electrical Engineering

i. Antennas, microwave engineering and radar systems

Microwave and Millimeter wave integrated circuits including Antennas, Radio Frequency MEMS, Microwave Engineering, Microwave Remote Sensing, Phased array Radars, Digital Beamforming radars.

ii. Communication and signal processing

Wireless communication, design and analysis of next generation cellular systems, cooperative communications, compressed sensing, statistical signal processing (detection and estimation theory), information and coding theory, machine learning for communication.

iii. Nanoelectronics, Plasmonics & Semiconductor Devices

Research, broadly, in semiconductor devices and modeling, nanoelectronics, plasmonics/optoelectronics, development of instruments for experiments in nanoelectronics.

iv. Biomedical Signal Processing and Imaging

Brain-Computer Interface Systems

5. Mechanical Engineering.

Conventional/ Non conventional machining; Heat Transfer; Energy Systems; Solid Mechanics and Design; Robotics and Motion Control; Computational Fluid Dynamics; Composites; Laser surface treatment; Combustion and Laser Diagnostics.

6. Mathematics

Several Complex Variables

7. Physics

Transport studies in 2D materials and perovskites. AdS/CFT correspondence & Quantum Field Theory. Single crystal growth of novel magnetic and electronic materials and magnetic, transport, thermodynamic investigation of them at low temperature and high magnetic field. Tuning of magnetic and electronic ground states by external perturbations like pressure.

8. Humanities and Social Sciences:

Economics: Development Economics

Philosophy: Continental Philosophy, Phenomenology and Existentialism

Linguistics and Culture Studies: Sociophonetics, Experimental Phonetics, Phonological Language Acquisition. Culture Studies, Indian Cinema, Gender

2. Ph.D and M.S Admissions

(i) Application:

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

(ii) Financial Assistance:

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

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

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

3. Selection Procedure:

Eligible candidates possessing the minimum educational qualifications (as given in section 4) and satisfying additional and stiffer criteria set from time to time, will be called for an interview and/or test by the Selection Committee.

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

The applications of foreign nationals may be considered without a personal interview / test .

Based on the academic record and the performance of the candidates in the interview and/or test, the Selection Committee will recommend to the Chairman, Senate the names of candidates found suitable for admission.

4. Reservation of Seats

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

5. Fees and Deposits:

Fees for MS & Ph.D Scholars to be admitted in August Semester 2019(For Day scholars)			
Sl. No	Items of Fees & Deposits	M.S	Ph.D
I. Institute Fee			
A. One Time Fee			
1	Admission Fee	150	150
2	Grade Card/ Thesis Fee	450	950
3	Provisional Certificate	100	100
4	Medical Exam Fee	100	100
5	Student Welfare Fund	500	500
6	Alumi Life Membership Fee(NS)	1000	1000
7	Publication Fee (NS)	250	250
	Total	2550	3050
B. Semester Fees:			
1	Tuition Fee	2500	2500
2	Examination Fee	300	300
3	Registration -Enrolment Fee	300	300
4	Gymkhana	1000	1000
5	Medical Fee	500	500
6	Student Wellness Fee	100	100
7	Medical Insurance Premium	1100	1100
	Total	5800	5800
C. Deposits (Refundable) :			
1	Institute Deposit	1000	1000
2	Library Deposit	1000	1000
	Total	2000	2000
II. Establishment Charges per semester			
1	Esst. 'A' Charges	5000	5000
Total Fee Payable at the time of Admission		15350	15850

Fees for MS & Ph.D Scholars to be admitted in the August Semester 2019 (For Hostellers)			
Sl.No	Items of Fees & Deposits	M.S	Ph.D
I. Institute Fee			
A. One Time Fee			
1	Admission Fee	150	150
2	Grade Card/ Thesis Fee	450	950
3	Provisional Certificate	100	100
4	Medical Exam Fee	100	100
5	Student Welfare Fund	500	500
6	Alumi Life Membership Fee(NS)	1000	1000
7	Publication Fee (NS)	250	250
	Total	2550	3050
B. Semester Fees:			
1	Tuition Fee	2500	2500
2	Examination Fee	300	300
3	Registration -Enrolment Fee	300	300
4	Gymkhana	1000	1000
5	Medical Fee	500	500
6	Student Wellness Fee	100	100
7	Medical Insurance Premium	1100	1100
	Total	5800	5800
C. Deposits (Refundable) :			
1	Institute Deposit	1000	1000
2	Library Deposit	1000	1000
	Total	2000	2000
II. Hostel Fees, Mess & Establishment Charges per semester			
1	Hostel Admission Fee	100	100
2	Hostel Deposit (NS) (Refundable)	3000	3000
3	Esst. 'A' Charges	5000	5000
4	Esst. 'B' Charges	1500	1500
5	Hostel Seat Rent	5400	5400
6	Electricity, Water Charges & SWD Charges	900	900
7	Advance Dining Charges	24500	24500
Total Establishment, Hostel and Mess Charges		40400	40400
Total Fee Payable at the time of Admission		50750	51250

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

6. Attending Interview for Ph.D/M.S. programme:

Candidates who expect to complete the requirements of their degree by the time of their admission may also appear for interview.

Candidates called for Ph.D. interview under the fulltime (HTRA) category will be paid one second class to and fro rail fare from their place of residence to Palakkad by the shortest route.

7. Completing the Qualifying Degree and production of Provisional Certificate:

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

8. Original Documents to be submitted for verification at the time of interview/ Admission:

At the time of Interview:

1. Printed copy of application submitted.
2. All the semesters Mark sheet/grade card / provisional / degree certificates beginning from first degree towards proof of qualification.
3. Community Certificate in the case of SC/ST/OBC-NCL candidates issued by the respective State Government.
4. Certificate proving EWS category.
5. Authorised Doctor's Certificate with disability descriptions in the case of Person with Disabled (PwD) candidates.
6. Copy of GATE score or UGC - JRF/NET/CSIR/ DAE-JEST or other fellowship award.
7. Project Co-ordinator's certificate in the prescribed format and a copy of project appointment letter in the case of Project Associate if already appointed.

At the time of Admission:

1. Offer of admission.
2. Birth Certificate.
3. Aadhar No. & PAN No.
4. First page of SSLC/SSC/Matriculation certificate
5. Copy of the submitted application form.
6. Original GATE Score Card/UGC-JRF/NET/CSIR-JRF/DAE-JEST or other fellowship award letter.
7. Degree certificate/Provisional/Course completion certificate/Grade Cards/Mark sheets of all the semesters of degrees obtained.
8. SC/ST/OBC-NCL community certificate for the candidate belonging to SC/ST/OBC-NCL/EWS category. [OBC-NCL scholars to bring a Non-creamy layer community certificate valid at the time of admission.
9. Relieving order/Resignation acceptance letter from the employer in the case of fulltime candidates , if employed except candidates selected under IITPKD Staff scheme.

In addition to the above.....

External candidates need to produce the following from their employer:

1. Research Co-ordinator's letter
2. Research Co-ordinator Degree certificate
3. NoC/Relief from the present employer

Project candidates need to produce:

- a) Project Co-ordinators's letter.

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

MINIMUM EDUCATIONAL QUALIFICATIONS FOR ADMISSION

1. Doctoral Program:

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

a) Ph.D. in Engineering

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

b) Ph.D. In Sciences

Master's degree in Sciences with a good academic record and having a valid GATE score or UGC/CSIR-NET/NBHM or equivalent qualification tenable for the current year in the relevant area. Master's degree holders in Engineering/Technology are also eligible.

Candidates who have qualified for the award of Bachelor's degree in Engineering/Technology from a Centrally Funded Technical Institute (CFTI)¹ with an exceptionally good academic record in an eligible discipline will be

¹ See Appendix 5 for the list of CFTI that would be used for admission purposes.

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

c) Ph.D. in Humanities and Social Sciences

Master's degree in an eligible discipline with a good academic record or equivalent and having a valid GATE score or UGC/CSIR- NET/NBHM or equivalent qualification tenable for the current year in the relevant area.

2. M.S.(Research) Program

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

- a) Candidates with a Bachelor's degree in Engineering/Technology/Master's degree in Science with valid GATE score.
- b) Candidates having Associate Membership of the following professional bodies are also be eligible for admission to the M.S. programme of their parent discipline provided they have a valid GATE score and have passed both part A and part B of the Membership examinations with a good academic record. (The Institution of Engineers (India) (Civil, Mechanical, Electrical and Electronics, Electronics and communications), The Aeronautical society of India, The Indian Institute of Metals, The Indian Institute of Chemical Engineers, The Institute of Electronics and Tele-communication Engineering and other professional bodies approved by the Senate from time to time.
- c) Engineering graduates from IITs and other Centrally Funded Technical Institutes (CFTI) with a minimum CGPA of 8/10 (7.5/10 for OBC-NCL and 7/10 for SC/ST/PwD candidates) are eligible for seeking admission, without GATE score, to the MS Programme and they can be offered HTRA, if selected.
- d) Institute staff members or Research Scholars under External Registration.

For M.S./Ph.D. Research Scholars in these categories, the minimum educational qualifications are the same as prescribed for full time research scholars. However,

valid GATE score or CSIR / UGC JRF or Lectureship / NBHM or equivalent qualification as applicable for regular full time research scholars shall not be required in these cases.

RESEARCH FACILITIES

IIT Palakkad has set up two central facilities namely Central Instrumentation Facility (CIF) and Central Micro Fabrication Facility (CMFF) to support the research activities of its faculty members, students and postdoctoral researchers.

i. Academic, Co-Curricular and Extra Curricular Facilities at IIT Palakkad

Institute Library

As the informatics center of the Institute, the Central Library provides an enjoyable learning experience with a carefully developed collection of printed books, printed journals, e-journals, standards, magazines and newspapers. It opened its doors to the students, faculty and staff in August 2015 with a collection of 700 printed books which has grown to more than 4000 printed barcoded books (textbooks, reference, popular sciences and literature) in the past three years. Based on the needs and requirements of researchers, the library has subscribed to a number of electronic journals with the support of E-Shodh Sindhu consortium for higher education. The operations of the library are fully computerised and enabled with the RFID system for fast transactions, for ease of access as well as for the security of the library . The library provides DDS service for e-journals through the union catalog (IITs, IISERs, IISc) hosted by IIT Gandhinagar and users of the library are also registered with the National Digital Library sponsored by the MHRD and coordinated by IIT Kharagpur.

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.
5. Design of large structures such as bridges and buildings.
6. Performing computational fluid dynamic simulations
7. Understanding the process of heat transfer in complex systems such as engines.
8. Solving non-equilibrium dynamics in quantum Hamiltonians

Central Instrumentation Facility (CIF)

The CIF will house a range of sophisticated analytical equipment capable of studying the physical, chemical, electrical, mechanical and magnetic properties of molecules as well as materials. The equipment are being installed in the temporary and the transit campuses. They will eventually be relocated to a dedicated Research Complex at the permanent campus.

Some of the equipment in CIF are listed below.

Semiconductor Parameter Analyser, Vector Network Analyzer, Signal Analyzer, Analog, Microwave Signal Generator, Wire Bonder, Mixed signal digital storage oscilloscope, 64-channel Electroencephalograph (EEG) Data Acquisition System, High Performance Liquid Chromatography, Liquid Chromatography Mass Spectroscopy, Nuclear Magnetic

Resonance Spectrometer, Raman spectrophotometer, X-ray diffractometer, Scanning Electron Microscope, Infrared spectrophotometer.

Central Micro Fabrication Facility

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

Broadly, research is proposed in the areas including (but not limited to): (i) Design, fabrication and 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 mmwave devices and circuits; (vi) Fabrication and characterization of Perovskite solar cells.

Career Development Centre

The institute has established a Career Development Centre (CDC) to cater to the training/internship and placement needs of the students. The centre is functional under a Professor In-Charge and the training placement officer. These functionaries work in conjunction with the faculty and student coordinators from each engineering stream. The placement induction programme and training sessions were planned from the year 2017-18 for the first batch of final year B. Tech. students.

HOSTEL FACILITIES AND STUDENT WELLNESS

Hostel Facilities

IIT Palakkad has 3 hostels in its temporary campus in which B. Tech students and Research Scholars are accommodated. All rooms in the 3 hostels have attached washrooms. Similarly, there are three hostels in the Transit Campus. A common mess serves food to all the students in Temporary and Transit campuses. The mess building is provided with one Television set each in both the floors with DTH connection. All hostels are provided with heavy duty washing machines and water dispensers with R.O. Purifiers.

STUDENT WELLNESS

Anti-ragging measures

The motto of the Institute is zero tolerance to ragging. To achieve this, documents and posters intended to sensitize the students and their parents on the highly immoral side of ragging, have been prepared. A structured mechanism has been put into place to monitor ragging related issues and mete out the most stringent punishment to the wrong doers and enforce the anti-ragging regulations in letter and spirit.

Counselling services

A professional counselling service has been set up in order to ensure that the students receive help when they face social/emotional issues that require a professional approach. Services of a resident counsellor are available to students all the time. Additionally, a NIMHANS trained counsellor visits IIT Palakkad every week from Friday afternoon to Saturday. An exclusive student wellness centre is functional. Apart from this, online counselling services of the Bangalore based company 'YourDost' is also made available to students.

Life skill classes

Students are given a course in life skills to cope with stress, improve communication skills and manage conflicting objectives. This course, conducted by experts, provides the students with a platform to discover new friends and develop new bonds. It enables the students to come out of their shell and easily mix with the new faces. They are also taught the art of forming well-knit close teams on whom they can lean when in need, without hesitation. The course is mainly aimed at developing inter-personal relationships, building confidence, and making them comfortable while facing the public, interview boards and so on.

Health Care

The students are covered by a comprehensive medical insurance scheme for a nominal yearly subscription. IIT Palakkad has MOU's with Athani Hospital, Malabar Hospital, Ahalia Diabetes Hospital, and Thangam Hospital for cashless medical attention. Students can also go to Hospitals of Ahalia foundation for treatment as outpatients.

Sports facilities

IIT Palakkad is continuously improving the support for sports & games. There are already existing facilities for football, volleyball, basketball, table tennis and cricket. Badminton facility has been improved by providing continued access to "4GB Badminton Academy" in Palakkad on a weekly basis. Professional coaches train students in table tennis and physical fitness as well as weight lifting. In addition to the above, modern fitness equipment is available in the Institute Gym.

APPENDICES

Appendix – 1

[To be submitted at the time of Admission]

**Admission to Ph.D./M.S. programme under
External Registration Scheme at IIT Palakkad**

Proforma for Relieving Certificate

Shri/Smt/Kumari.....
employed as

*..... is granted leave for 20 weeks
(140 days) commencing from*

*..... to and is relieved of his/her duties with effect from
.....*

*to to enable him/her to pursue M.S./Ph.D. Research programme under
External Registration Scheme in August /January semester at the Indian
Institute of Technology Palakkad, Kerala - 678557 as per their offer of admission letter
No..... dated*

.....

Date :

Signature of the Officer with name
and address of the Organisation

Office Seal

[To be submitted at the time of Interview]
**Certificate from the Employing Organisation
for external registration of their employees in
Ph.D./M.S. programme of IIT Palakkad**

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

- 1 This organization has adequate facilities for carrying out the research indicated by the applicant and if he/she is selected, these will be made available to him/her till the completion of the programme.
- 2 The applicant will be deputed/given leave for duration of his/her residence period at IIT Palakkad.
- 3 Facilities will be made available to the Co-guide to supervise the work of the applicant and to attend the meetings at IIT Palakkad when necessary.
- 4 Till the completion of his/her research programme, the applicant will not ordinarily be transferred to another unit or place which may impede his/her work under the scheme. If such a transfer is necessary, IIT Palakkad will be informed within a month of such transfer. We understand that continuing of registration will depend on IIT's decision in this regard, taking into account all the relevant factors.
- 5 We note that the facilities of the Institute will be made available to him/her for carrying out the work and that there will be no separate charge (other than tuition fees payable by the candidate) for the use of laboratory, library and other facilities.
- 6 No part of the work carried out in fulfilment of the Research programme will be utilized commercially or for applying for a Patent without the approval of Indian Institute of Technology Palakkad and other than on terms mutually agreed to by IIT Palakkad and this organization.

Date:

Signature of the Officer :

Name and Designation :

Postal address of the Organisation :

Seal of the organization/Institution

[To be submitted at the time of Interview]

Particulars of Co-guide for external Registration Scheme

In addition to being in a position to ensure technical and logistic support to the scholar in his/her research work in the organization, the Co- guide must have a minimum academic qualification of a Master's degree in Engineering or Ph.D. in Science and adequate professional experience in the relevant field. The Co -guide should not himself be a scholar working for any higher degree of any university. He will be an invitee to the Doctoral Committee/General Test Committee meetings at IIT Palakkad.

- (1) Name of proposed Co-guide :
(in block letters)
- (2) Academic qualifications of Co-guide :
Membership of Professional
- (3) Societies of Co-guide :
- (4) Designation of Co-guide :

Certificate from Co-guide

This is to state that in the event of Mr./Ms. _____
of this

organization being selected for Ph.D. / M.S. programme in the Department of

_____ under the External Registration
Scheme of IIT

Palakkad, I agree to be one of his/her guides and I shall extend all possible facilities to
enable

him/her to carry out his/her research towards the completion of the programme.

Date:

Signature of Co-guide

[To be submitted at the time of Interview]

Admission to Ph.D. / M.S. programme under Project Scheme at IIT Palakkad**Certificate from the Project Co-ordinator**

I have noted the conditions stated below concerning the registration of project staff for Ph.D. / M.S. programme.

This is to certify that Mr./Ms. _____ is working in the project titled _____ since _____ as _____. The candidate is eligible to continue in the project for a minimum period of one more year from the date of his/her joining the research programme (Ph.D./ M.S.) even though his/her appointment is up to _____ as per his/her appointment order. The actual duration of the project is up to _____.

Conditions:

1. For a person employed on a project to be eligible for Ph.D./M.S registration, there should be a minimum residual period of one year's service in the project from the date of registration.
2. Person employed on a project can apply for admission to M.S. programme with a minimum project experience of six months without valid GATE score subject to qualifying in selection procedure (interview / written examination) of the concerned department. They will not be eligible for HTRA until they qualify in the GATE examination. The scholars may seek conversion from project to HTRA provided they qualify in GATE with the minimum cut-off prescribed for the selection of scholars admitted in his/her batches.
3. Eligibility requirement of project staff applying for Ph.D. will be treated equivalent to that of External registration candidates.

Date:

Signature and name of the Project Coordinator

Department of _____

Countersigned:

Date:

Head of the Department of _____

LIST OF CFTI INSTITUTIONS

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