



भारतीय सूचना प्रौद्योगिकी, अभिकल्पना एवं विनिर्माण संस्थान, कांचीपुरम

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY,  
DESIGN AND MANUFACTURING (IIITDM) KANCHEEPURAM  
Off Vandalur-Kelambakkam Road, Chennai - 600 127  
(An Institute of National importance under MHRD, Govt. of India)

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### Ph.D ADMISSION BROCHURE

#### 1. THE INSTITUTE

Indian Institute of Information Technology Design and Manufacturing, Kancheepuram is an Institution of National Importance established in 2007 by the Ministry of Human Resource Development, Government of India and is located at outskirts of Chennai. It is a Centre of Excellence for pursuing Design and Manufacturing oriented Engineering Education and Research and for promoting competitive advantage of Indian products in global markets.

IIITDM Kancheepuram offers undergraduate, postgraduate, dual-degree programmes in the areas of Computer, Electronics and Communication, Mechanical Engineering and inter-disciplinary Ph.D programmes in core and applied areas of science and engineering. It functions with the vision to groom engineers with design and manufacturing skills. The institute gives significant amount of emphasis for practice courses and theory concepts are also explored along with the relevant laboratory course. In concise, the motto of the institute is “**Learning by Doing**”.

#### 2. ABOUT RESEARCH PROGRAMMES

The Institute offers Ph.D. programmes in the disciplines of Computer Science and Engineering, Electrical, Electronics and Communication Engineering, Mechanical Engineering, Mathematics and Physics. Details of Research Areas for admission during July 2017 under Institute fellowship are provided at **Annexure ‘A1’**.

In addition, Ph. D admission in select research area is carried out under **Visvesvaraya Ph. D scheme**. The details of the same are provided at **Annexure ‘A2’**.

#### 3. INFRASTRUCTURE AND OTHER FACILITIES:

IIITDM Kancheepuram functions in its permanent campus located at outskirts of Chennai. This modern campus with digital classrooms and well equipped laboratories caters the needs of about 1000 students currently. The institute is also well equipped with experimental and computational facilities. The Library has good collection of books, printed journals, magazines, leading newspapers, e-Journals, softcopy of NPTEL course materials and video contents. The Library maintains a separate collection of reference books. The institute also subscribes nearly 1100 e-journals viz IEL (IEEE & IEE) and Elsevier Science.

The institute has separate fully furnished hostels for both boys/girls in the campus. Students residing in the hostels are provided with exclusive dining facility. Entire campus is wifi enabled.

#### 4. EDUCATIONAL QUALIFICATION

##### 4.1 Direct PhD (for applicants having UG degree) :

Candidates who have qualified for the award of Bachelor’s degree in Engineering/Technology with exceptionally good academic record in an eligible discipline will be considered for **direct admission to Ph.D. Programme** as a regular full time scholar subject to the following conditions:

- A B.Tech degree holder from IIT with a minimum CGPA of 8.0 on a 10 point scale or with a valid GATE score.
- A Bachelor's degree holder in Engineering/Technology from any other University should be among the top 10 rank holders in the University and having a valid GATE score.
- A Bachelor's degree holder in Engineering/Technology from a reputed R & D organization with excellent research record.

#### 4.2 For applicants holding PG degree :

- Candidates with a Master's degree in Engineering/Technology (ME/MTech/M Des) or a Master of Science (MS) degree by Research in Engineering/Technology with a good academic record. (Also refer to sec 5.1)
- Candidates with Master's degree in Sciences with a good academic record and of exceptional merit where eligible, for the relevant Engineering discipline and with a valid GATE score or UGC/CSIR NET/NBHM or equivalent qualification in the relevant area tenable for the year of registration.

#### 4.3 For candidates under NHTRA category (without stipend)

The minimum educational qualifications are the same as prescribed for Regular (full time) category in 4.1 & 4.2 for admission to the Ph.D. Programme in the respective categories.

### 5. ELIGIBLE DEGREES FOR ADMISSION TO Ph.D. PROGRAMME (For applicants holding PG degree):

Sl. No.	Discipline	Eligibility
1.	<b>Computer Engineering</b>	Master's degree in Engineering/Technology. Preference will be given to those with M.Tech/M.E/M.S degree in Computer Science & Engineering. (MCA / M.Sc / M.Phil are not eligible)
2.	<b>Electronics Engineering</b>	Master's degree in Electrical Engineering (Electrical and Electronics Engineering)/ Electronics Engineering (Electronics and Communication Engineering) / Instrumentation Engineering or Master's degree in Physics followed by a Master's degree in Engineering in an area of relevance to the area of research
3.	<b>Mechanical Engineering</b>	Master's degree in Mechanical Engineering, Aerospace Engineering, Automobile Engineering, Energy Engineering, Industrial Engineering, Instrumentation, Maintenance Management, Metallurgical Engineering, Production/ Manufacturing Engineering/ Mechatronics/ CAD/CAM/ CIM and in related areas depending on the research topics
4.	<b>Mathematics</b>	Master's Degree in Mathematics/ Statistics/ Physics/ Computer Science with GATE/UGC/CSIR/NBHM or M.Tech (Industrial Mathematics & Scientific Computing) or any M.Tech degree with Master's degree in Mathematics/Physics/Statistics/ Computer Science
5.	<b>Physics</b>	M.Sc/M.Sc (Tech) in Physics, Applied Physics, Materials Science/M.Tech (Solid State Technology)/M.Tech (Materials Science)/ M.Sc. Applied Optics/ Optoelectronics or equivalent.

## 6. Ph.D ADMISSION

### 6.1 Admission with Financial Assistance (HTRA):

The scholars admitted to the Ph.D. programmes under the **regular-HTRA** scheme (Full time) are eligible for the Half-time Teaching/Research Assistantship (HTRA) under the following regulations:

- (a) The scholars should work for at least 8 hours per week to earn this assistantship.
- (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.
- (c) Quantum of financial assistance is as under:

Post Graduate Degree in Basic Science with NET/GATE Qualification or Graduate Degree in Professional Course with NET/GATE Qualification or Post Graduate Degree in Professional Courses	1 <sup>st</sup> & 2 <sup>nd</sup> Year: Rs.25,000/- 3 <sup>rd</sup> to 5 <sup>th</sup> year: Rs.28000*/- (*Upon successful assessment by the review committee after period of two years).
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### 6.2 Admission without Assistantship (NHTRA):

The candidates may also be considered for admission to the Ph.D programme without assistantship (NHTRA) under **Regular** (Full time) / **External / Internal** (*Project / Staff*) categories.

Candidates applying for Regular (Full time) Ph.D programme have to enclose a letter along with the Application Form stating that they may be considered for admission even without assistantship (NHTRA).

The eligible qualifications for NHTRA –**External** candidates are:

Must belong to any one of the following category

- (i) Industry/Organization having R&D facilities and recognized by DST, GOI or IITs
- (ii) National Research Laboratories
- (iii) Reputed Universities / Colleges
- (iv) Public / Private sector

For candidates under **External** category:

- (i) Minimum residential period is **one semester**
- (ii) The parent institute must have sufficient research facilities to carryout research work in the area of research the candidate has registered

### 6.3 Selection Procedure:

Eligible candidates possessing the minimum educational qualifications (as given in Section 4) and satisfying additional and stiffer criteria set by the institute from time to time will be called for test/ interview.

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

### 6.4 Reservation of Seats

Reservations are applicable to SC/ST/OBC/Candidate with Physical Disability (PD) as per the rules and regulation of the Govt. of India.

### 6.5 Fee Structure

The Fee structure for the Ph. D Programme is given in **Annexure 'B'**.

### 6.6 TA for attending Interview for Ph.D programme

Outstation candidates shortlisted for Ph.D. interview based on performance in written test under the **regular (full time)** category will be paid a second class single to & fro rail fare from their place of communication address to Chennai by the shortest route. A candidate is entitled for a single TA as above even if he/she may attend interview in more than one discipline in the same trip.

### 6.7 Completing the Qualifying Degree and production of Provisional Certificate:

Candidates joining Ph.D programme in July-December/January-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 within three months from the date of registration i.e. on or before 30th September for July admission / 31st March for January admission.

### 6.8 Application Procedure:

- a) Interested candidates are to apply online in the link provided in the institute website. Only online application is accepted and the candidates are advised to take a print of your application and keep the same for the record.
- b) Application fee:
  - GN/OBC-NC Male candidates: Rs.250/-
  - GN/OBC-NC Female candidates/SC/ST and PwD candidates : Rs.125/-

Candidates need to pay application fee only through online and procedure is given in **Annexure 'C'**. Application fee once paid is non-refundable.

- c) Shortlisted candidates qualified for the Interview need to submit the following applicable self attested documents and original need to be produced for verification and return:
  - a) Copies of all Mark sheets/grade cards, degree certificates beginning from SSLC towards proof of qualification with Original certificates.
  - b) Copy of Community Certificate in the case of SC/ST/OBC candidates issued by the competent authority of respective State Government.
  - c) Authorised Doctor's Certificate with disability descriptions in the case of Person with Disabled (PD) candidates.
  - d) Copy of GATE score or UGC - JRF/NET/CSIR/ DAE-JEST or other fellowship award.
  - e) Copy of proof of Experience certificate if any.

## Important Dates

➤ On line Registration of Application forms will be open on	...	12.04.2017
➤ Last date for Registration of application through on-line	...	05.05.2017
<ul style="list-style-type: none"> <li>• Tentative dates of test/interview (for short listed candidates)</li> </ul>		
➤ Computer Engineering	...	05.06.2017
➤ Electronics Engineering	...	
➤ Mathematics	...	06.06.2017
➤ Physics	...	
➤ Mechanical Engineering	...	
• Announcement of Results	...	Second Week of June 2017
<p>Selected candidates need to submit / send their acceptance together with the fees for the first semester <b>on or before 30<sup>th</sup> June 2017</b>.</p> <p>Academic session for July-Nov 2017 will starts on 24<sup>th</sup> July 2017.</p>		

**ON GOING RESEARCH AREAS (but not limited to)**

Stream	Research Topics
Computer Engineering	<ul style="list-style-type: none"> <li>• Network System Design, Packet Processing Architectures and algorithms, HEVC, VLSI Architectures and Algorithms for Digital Signal Processing.</li> <li>• Digital Image Processing and Biometrics</li> <li>• Graph Theory and Algorithms</li> <li>• Data Mining, Evolutionary Computation</li> <li>• Social Networks, Intelligent Transportation, Wireless Networks.</li> <li>• Autonomous Systems and Robots</li> </ul>
Electrical Engineering	<ul style="list-style-type: none"> <li>• Grid connected Inverters, Smart Grid, Electrical Drives</li> </ul>
Electronics Engineering	<ul style="list-style-type: none"> <li>• Digital Signal Processing, Control systems, Digital Filters.</li> <li>• Analog and Digital VLSI Design.</li> <li>• Wireless Communication, Digital Communication.</li> <li>• RF and Microwave Engineering, Antennas, Additive Manufacturing of RF devices.</li> <li>• Social Networks, Intelligent Transportation, Wireless Networks</li> <li>• Robotics, Control Systems.</li> </ul>
Mathematics	<ul style="list-style-type: none"> <li>• Graph Theory and Algorithms,</li> <li>• Discrete Mathematics, Combinatorics, Algorithms</li> </ul>
Mechanical Engineering	<ul style="list-style-type: none"> <li>• Finite Element Methods, Smart Materials and structures, Smart Composites, Material Modeling, Biomechanics.</li> <li>• Smart Manufacturing Additive Manufacturing, Sustainable Manufacturing, Design and Manufacturing Integration.</li> <li>• Computational fluid flow and heat transfer.</li> <li>• Advanced composite materials, fatigue and fracture, multiscale modeling, finite element based topology optimization, Design with polymers and composites.</li> <li>• Closed loop Supply chain, Big Data Analytics, Cloud Computing in supply chain, Product Recovery and Remanufacturing, Product Lifecycle Management.</li> <li>• Simultaneous Heat and mass transfer at low pressure, Freezing - Sublimation heat &amp; mass transfer, Electronic cooling systems.</li> <li>• Experimental and Computational Biomechanics, Euclidean and Non-Euclidean Geometric Modelling.</li> </ul> <p><b><i>Interdisciplinary (Mechanical/Mechatronics/Electronics/Computer Sci &amp; Engg.)</i></b></p> <ul style="list-style-type: none"> <li>• Mobile Robotics; Serial, Parallel, Compliant Mechanisms; Smart Materials, Structures and Micro Actuators; 3D Digital Reconstruction; Smart Manufacturing and IoT</li> <li>• Control and Operation of Multi-robot Fixture System with Swarm Intelligence; Fuzzy Control.</li> </ul>
Physics	<ul style="list-style-type: none"> <li>• Nuclear Physics/ Nonlinear Dynamics</li> </ul>

## **PH.D ADMISSIONS UNDER VISVESVARAYA PH.D SCHEME**

The [Department of Electronics and Information Technology \(DEITY\)](#), Government of India has approved 01 Ph.D position for IIITDM Kancheepuram under the [Visvesvaraya Ph.D scheme](#) in the broad area of IT and electronics.

The scheme is available only for Ph.D candidates in the broad areas of *Electronic Design and Manufacturing (ESDM)* and *IT/IT enabled Services (ITES)* sector .Please visit the following website for general information regarding this scheme.

<http://phd.medialabasia.in>

**Highlights of Visvesvaraya PhD Scheme are the following:**

1. **Fellowship Period:** This is a full-time Ph D program with fellowship for a maximum period of five years.
2. **Fellowship @** Rs.31,500 per month in 1<sup>st</sup> and 2<sup>nd</sup> year, and @ Rs. 35,000 per month in 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> years of Ph. D.
3. **Annual contingency grant/support @** Rs. 30,000/- per year per full time PhD candidate for consumables etc.,
4. **Reimbursement of Rent (RoR):** For those full time PhD candidates who are not provided accommodation or choose not to avail the accommodation provided by the Institution. The RoR would be on a reimbursement basis, based on actual and subject to a ceiling based on location of the Institute registering the PhD candidate. The ceiling would be 30%, 20%, and 10% of the fellowship amount as per the Government of India norms for class X, Y or Z cities respectively.
5. **Support for attending International Conferences:** Support for attending up to two renowned international conferences per full-time PhD candidate: @ up to maximum support of Rs. 50,000/- for each international conference would be provided. The total support under the scheme is for 1000 such participations fulfilling the norms defined in the Visvesvaraya PhD scheme on first come first serve basis.

**Research Areas:**

1. **Computer Science and Engineering** (VLSI and Electronics System Design):
  - a. Network Function Virtualization and SDN
  - b. Network System Design
  - c. High Performance Packet Processing
  - d. VLSI architectures for Signal Processing
  - e. Power Line Communication System Design

**Selection Procedure:**

Eligible candidates possessing the minimum educational qualifications (as given in Section 4 & 5) and satisfying additional and stiffer criteria set by the institute from time to time will be called for test/ interview.

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



**Fee Structure**

<b>I. Institute Fees</b>	<b>Amount</b>	
	<b>GN/OBC-NC</b>	<b>SC/ST</b>
<b>Particulars</b>		
A. One time Fees:	3600	3600
B. Semester Fees:	25000	6000
C. Deposits (Refundable):	2500	2500
D. Medical Insurance Premium (per annum)	575	575
<b>Total – I [A+B+C+D]</b>	<b>31,675</b>	<b>12,675</b>
<b>II. Hostel Fees</b>		
A. Deposits (Refundable)	2000	2000
B. Hostel Fees & Mess Charges per semester *	22700	22700
<b>Total – II (A+B)</b>	<b>24700</b>	<b>24700</b>
<b>Grand Total (I + II)</b>	<b>56,375</b>	<b>37,375</b>

*\*Includes approximate food expenses per semester*

+SC/ST students are exempted from payment of tuition fee.

THE PROCEDURE FOR ONLINE PAYMENT OF FEES AS FOLLOWS:

GO TO:

<https://www.onlinesbi.com>

- select STATE BANK COLLECT
- ACCEPT TERMS & CONDITIONS
- PROCEED
- SELECT STATE – TAMIL NADU
- SELECT TYPE OF INSTITUTE - EDUCATIONAL INSTITUTE
- GO
- DROP DOWN - PICK UP IIITD&M KANCHEEPURAM AC
- SUBMIT
- SELECT CATEGORY
- MISCELLANEOUS PAYMENTS
- SELECT NATURE OF PAYMENT
- MISC FEES  
**(Rs. 250 for GN/OBC and Rs.125 for SC/ST/PD/Female Candidates)**
- SELECT PAYMENT CATEGORY
- PROCEED
- ***Take print of online receipt and enclose it along with filled application***