

PROSPECTUS

Admission to

PH.D. PROGRAMMES

(Rules & Procedures)*



Academic Cell

**NATIONAL INSTITUTE OF
TECHNICAL TEACHERS
TRAINING AND RESEARCH,
SECTOR – 26, CHANDIGARH – 160 019**

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* For further details, please see the concerned university Ph.D regulations.

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National Institute of Technical Teachers Training & Research, Chandigarh

Ph.D. PROGRAMMES (Rules & Procedures)

1. Introduction

In realization of the need for training better quality technicians to meet the large scale industrialization of the country, the Ministry of Human Resource Development (the then Ministry of Education), Government of India, on the recommendations of All India Council for Technical Education (AICTE), established four Regional Technical Teachers' Training Institutes (now National Institute of Technical Teachers' Training & Research, (NITTTR) at Bhopal, Chandigarh, Chennai and Kolkata in 1967. The Institute at Chandigarh, started in collaboration with Royal Netherlands Government (upto 1974), was designed to meet the requirements of developing polytechnic education in the northern region covering the states of Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh, Uttrakhand, Delhi and Union Territory of Chandigarh. The institute during the last fifty years acted as a resource system to technical education and provided guidance at national, state and institution levels in policy formulation, planning and management, quality controls etc. The Institute is registered under the Societies Registration Act, 1860 and is managed by a Board of Governors.

To achieve its stated objectives, the institute undertakes the following spectrum of activities: Education and Training Programmes; Curriculum Development; Instructional Material Development; Research and Development; Extension Services; Consultancy in Technical Education and Technology areas. Keeping in tune with the various emerging needs of the country, the institute presently extends its services in the following areas as well: Media Development including information resources, their acquisition, storage and retrieval; Entrepreneurship Development; Industry Institute Interaction; Continuing Education for working engineers/technicians; Rural development; Transfer of Appropriate Technology to rural areas; Integrating Persons with disabilities with the mainstream of Technical and Vocational Education.

Since 1992, the institute started offering Regular **Master of Engineering Programmes** in (i) **Engineering Education** and (ii) **Manufacturing Technology**. In the year 1994, two more courses namely Master of Engineering in **Construction Technology and Management** and **Computer Science and Engineering** were added. In the year 1998, two more Master of Engineering Programmes in **Instrumentation and Control** and **Electronics and Communication Engineering** were added, and, since 2005, the institute started offering **Master of Engineering Programmes** on **Modular** mode in all the above disciplines. All these programmes, being offered for teachers of technical institutions and their administrators, professionals from industry, are duly **approved by AICTE and affiliated to PU, Chandigarh.**

Since 2003, Engineering Colleges in the northern region have been brought under the purview of this institute as per the directions of MHRD. Since then, this institute has been conducting many short term courses in various subjects for Engineering College teachers in addition to catering to their other needs. The institute is organizing large number of short term courses for faculty of Engineering Colleges every year. In addition, the institute is also organizing induction training programmes and content based short term courses through ICT.

The status of the institute was elevated to a National Institute and renamed as **National Institute of Technical Teachers Training and Research on 18 November, 2003** with an objective to play larger role for the improvement of Technical Education in the country. **Director is the Executive Head (CEO) of the institute.** The institute has been ISO 9001-2000 certified.

The institute has been recognized as a '**Research Centre**' by

- i) **Panjab University, Chandigarh (in 2007)** vide PU letter No. 2669/GM dated 24.01.2007.
- ii) **IK Gujral Punjab Technical University, Jalandhar (Punjab) (in 2005)** vide PTU letter No. DPD/Ph.D/5650 dated 15.09.2005.
- iii) **Himachal Pradesh University, Shimla (IIHS) (in 2017)** vide HPU letter No. 9-42/2002-HPU (Genl.) Vol-IV- 679 dated 27.03.2017

for pursuing research work leading to the degree of Doctor of Philosophy (Ph.D.). At present, 70 candidates are pursuing their Ph.D. work in various disciplines under Faculty of Engineering & Technology & other Faculties of Panjab University, Chandigarh as well as IKG-PTU, Jalandhar. Out of 70 candidates, 20 candidates were admitted in Ph.D. programmes under QIP (Poly) scheme of AICTE, New Delhi. Three candidates of the institute are pursuing their Ph.D under INSPIRE fellowship. As on date 36 candidates have already completed their Ph.D program

2. Vision and Mission of NITTTR, Chandigarh

VISION

- To be a lead resource institute for promoting excellence in technical education system.

MISSION

- To offer continuing education and training programs for the faculty and staff of the technical education system.
- To develop need-based curricula for technical education programs.
- To develop instructional material to enhance effectiveness of teaching-learning process.
- To undertake research and development in engineering & technology and technical education.
- To provide extension and consultancy services to technical education system.

Quality Policy – NITTTR is committed to provide high quality and customize education, training, R&D and extension services to technical and vocational education system, industry and community. The institute shall develop leadership in technical teacher training and provide educational products and services to enable the technical education system to achieve excellence internationally.

3. Objective of Ph.D. Programmes

The Ph.D. programmes are designed to prepare teachers from Engg. Colleges & Polytechnic, working engineers from Corporate Sector and scientists from R&D organization to enter their professional life with right perspective and breadth of knowledge related to their respective fields of specialization through enabling research experience during their stay in the Institute, thereby to develop high quality scientific and engineering specialists having strong base of principles of science and the scientific methods, deep understanding of their chosen areas of specialization, the motivation to learn continually, interact with multi-disciplinary groups and dare to handle new challenges offered by the front-end technologies. Above all, the scholars should develop the capacity for free and objective enquiry, courage and integrity, awareness and sensitivity to the needs and aspirations of the society.

4. Admission to Ph.D. Programmes

Applications are invited from candidates by advertising the Ph.D. programmes on institute's website: (www.nitttrchd.ac.in) in the month of **May** and **December** every year.

Admission to the Ph.D. programmes in

Branch/Discipline	Panjab University, Chandigarh	IKG-Punjab Technical University, Jalandhar	HP University, Shimla (Institute of Integrated Himalayan Studies)
Mechanical Engineering (Manufacturing Technology)	✓	✓	-
Civil Engineering (Construction Technology & Management)	✓	✓	-
Computer Science & Engineering	✓	✓	-
Electrical Engineering (Instrumentation & Control)	✓	✓	-
Electronics & Communication Engineering	✓	✓	-
Engineering Education	-	✓	-
Management	-	✓	✓
Rural Development, Environmental Sciences, Himalayan Studies, Climate Change, Disaster Management, Entrepreneurship and Small Enterprise Management, Management of Disabilities and Sustainable Development	-	-	✓

shall be made on the basis of presentation and/or interview conducted at the Institute after the candidate has appeared and qualified in the Ph.D. Entrance Examination by the concerned university/National agency/prescribed qualifying criteria of concerned university.

Admission to Ph.D. is also possible any time during the year through institute's Academic/Research Degree Committee with the approval of the Director, NITTTR, Chandigarh for all categories of scholars.

Institute's Academic/Research Degree Committee will assess the eligibility of candidates and recommend them for enrolment/registration to the university. The candidates are required to fill-in the application form (enclosed in the Ph.D. Brochure of the concerned university) for enrolment/registration. All regulations and rules for the degree of Doctor of Philosophy of the concerned university will be followed.

5. Categories of Scholars

Full-time sponsored (including QIP (Poly) Scheme of AICTE, New Delhi and CSIR) (INSPIRE) **OR** full time {or part time as per university requirement} teachers from Engg. Colleges & Polytechnics, working engineers from Corporate Sector and scientists from R&D organization are eligible to apply. Fresh Master's Degree candidates desirous of seeking admission in Ph.D Programme are also encouraged to apply. **Full Time Scholars admitted under QIP (Poly) scheme, CSIR (INSPIRE), and other schemes (where scholarship is available) will get scholarship as per rules of various schemes.**

The candidates have to comply with all the UGC regulations as accepted by the concerned university.

6. Eligibility Criteria for Ph.D. Admission

Minimum Eligibility:

- Master's degree in Engineering Education or Engineering/Technology/Management or equivalent in a relevant discipline with minimum 60% marks in aggregate or with a minimum CGPA of 6.75 on a 10 point scale.
- Qualified the Ph.D. Entrance Examination by the concerned university (exemption from appearance in the entrance examination shall be as per the Ph.D. ordinance of the concerned university).

Basis of Selection:

- Presentation and interview: Academic/Research Degree Committee of the institute/ university will assess the eligibility of the candidates.

NOTES:

1. Candidates should first appear in the Entrance Test either by Punjab University, Chandigarh OR IKG-Punjab Technical University, Jalandhar or Himachal Pradesh University (Institute of Integrated Himalayan Studies) before applying to the institute.
2. Candidates should apply for admission on the prescribed form which is enclosed with Ph.D. Brochure, duly filled in their own handwriting along with qualifying certificate of Ph.D. Entrance Test.
3. Sponsorship letter should include an undertaking stating that the period of study will be treated as 'on duty' with usual salary, and he/she will be relieved for the period of studies, and, all fees will be paid by the candidate/organization as per institute rules.
4. **Full Time candidates** as well as **Part-time candidates (check rules and regulations of concerned university in respect of Part-time candidates)** are required to submit a "No Objection Certificate" at the time of interview from their employers stating that the candidate is permitted to pursue studies on a Full Time / Part-time basis and that
 - his/her official duties permit him/her to devote sufficient time for research.
 - he/she will be fully relieved from duty and permitted to reside at the Institute for a period as per university requirement during his/her registration for the degree.
5. The relevancy/equivalency of M.Tech/ME degree for admission to a given discipline will be defined/determined by the concerned RDC of the university.
6. Admission is subject to vacancy with each supervisor/guide (not more than six) being available in the relevant specializations.
7. Candidates must be medically fit and must bring alongwith them a medical fitness certificate signed by Gazetted Medical Officer at the time of admission.
8. The application form along with attested copies of certificates must be submitted to the Dean, Academics & International Affairs, Academic Cell. The interview for the admission will be held by the Ph.D. Academic/Research Degree Committee of the institute in the office of the Director.
9. In case a student leaves the Institute without completing the Ph.D. programme, he/she will be refunded only the Institute security/caution money. All outstanding dues will, however, be recovered before such refund is made.
10. The Institute reserves the right to alter the schedule of admission, fee structure, financial incentives to candidates if considered, necessary.

7. Ph.D. Candidature

A student shall be awarded the Ph.D. candidacy on completion of the following requirements:

- An Internal Academic/Research Degree Committee of the institute shall consider each application, assess the eligibility of candidates, interview them at the time of enrolment.
- The candidates' enrolment/registration applications (as per university format) along with the recommendation of the committee will then be submitted to the university.
- The candidate must qualify Ph.D. course work on one semester as per rules and regulations (minimum standards and procedure for award of Ph.D.) of the concerned university.
- A student must present a State-of-Art seminar to delineate the current state of knowledge about the specific problem related to which he/she wants to pursue research. The presentation should include the objectives and literature survey of the specific problem, the methodology that he intends to use to conduct the research. This will be an open seminar. The Academic/Research Degree Committee will assess the suitability of the proposed topic/problem for research before submitting to the university for registration. The committee will, on acceptable presentation, certify the fulfillment of these requirements. The candidate will submit one hard copy of the synopsis of his/her research project for consideration by RDC & Research Board and rest of the copies will be submitted in pdf format. The pdf file would be supplied on the official email account of the dealing branch of the concerned university along with his registration form. The presentation can be scheduled at least after one semester but no later than 1 year after his initial registration/enrolment. In case a candidate fails to complete this requirement within 1 year, his enrolment/registration will be cancelled.
- Candidates are advised to visit the website www.nittrchd.ac.in regularly for updates.

8. Monitoring Process

After the candidate is granted Ph.D. Candidature, the progress of the research work will be continuously monitored through bi-monthly presentations/reports before the concerned Academic/Research Degree Committee of the institute (six monthly progress report by January - June and July-December in case of Panjab University, Chandigarh) on a prescribed proforma to be sent by the supervisor to the RDC of the university.

9. Open Pre-Submission Thesis Seminar

There will be an open presentation of the work done by the candidate before the thesis is bound and submitted for evaluation to the university. The Academic/Research Degree Committee of the institute may recommend modification for extending the work required before the thesis is completed. A certificate from the supervisor stating that all modifications, if any, recommended by RDC have been incorporated, the research work being reported is the original contribution of the candidate and the work has not been presented anywhere else for the award of any other degree. The pre-submission seminar is subject to publication/acceptance of atleast one paper in SCI Journals.

10. Submission of Thesis

A thesis may be submitted after a minimum period as per the university norms subject to publishing or acceptance of one paper in SCI Journals. The thesis must strictly fulfill all the requirements on the format prescribed by university. The candidate shall submit required number (as per university norms) of hardbound copies of the thesis for evaluation by the university.

11. Thesis Evaluation

Thesis will be evaluated as per the norms of Panjab University, Chandigarh or PTU, Jalandhar or HP University (Institute of Integrated Himalayan Studies), Shimla. To evaluate the Ph.D. thesis, a panel of 06 professors/readers will be proposed by the supervisor of the candidate from amongst

IISc, IITs, NITs or universities and establishments abroad (Optional in case of Punjab University, Chandigarh). The panel should be duly recommended by the Head of the Department and sent to the Director for his approval/ addition/deletion. For further details, see the concerned university norms.

12. Viva-voce Examination

Based on reports from the examiners of Thesis evaluation, the external examiner will examine the candidate through an open Seminar/Viva Voce for the award of the Ph.D. degree in accordance with the rules prescribed by the university. For further details, see the university guidelines.

13. Duration

The minimum duration of the Ph.D. will be 3 years from the date of enrolment/registration subject to a maximum period of 5 years. The extension beyond this period can be granted on the approval of Director of the institute by the Vice Chancellor of the concerned university. For further details, see the university guidelines.

14. Academic/Research Degree Committee

The institute will constitute an Internal Academic/Research Degree Committee in each discipline of engineering, viz., consisting of Mechanical Engineering (Manufacturing Technology), Civil Engineering (Construction Technology & Management), Computer Science & Engineering, Electrical Engineering (Instrumentation & Control), Electronics & Communication Engineering, Engineering Education, Management and which shall consist of

- (a) Director
- (b) Head of the Department
- (c) Ph.D. Guide and Co-guide (if any)
- (d) Senior Most Professor or Professor (holding Ph.D. degree) nominated by the Director
- (e) Dean, Academics and Int'l Affairs

The committee shall consider each application, assess the eligibility of candidates, interview them at the time of enrolment at the institute. The candidates' enrolment/registration applications (as per university format) along with the recommendation of the committee will then be submitted to the university. The committee will also assess the suitability of the proposed topic/problem for research before submitting to the university.

15. Fee Structure for Ph.D. Students

Admission Fee (One-Time at Admission only)	Rs. 5,000/-
Tuition Fee (Per Semester)	Rs. 7,500/-
Other facilities/services (library/internet/welfare/development etc. (Annual)	Rs. 4,000/-
Security (Refundable)	Rs. 7,000/-
Synopsis presentation & Final University Exam	Rs. 5,000/- per activity (to be charged separately)
Continuation Fee (after three years from date of admission)	Rs. 10,000/- per annum
Hostel/Mess Charges	As per rules

- **Students will deposit University's enrolment/registration, migration fee (if any), annual charges and thesis submission fee etc. as per university's norms separately to the concerned university.**

17. Research Programmes: Doctor of Philosophy (Ph.D.)

The Institute offers research programmes leading to the degree of Ph.D. in the following disciplines:

Discipline of Mechanical Engineering (Manufacturing Technology)

Heat Transfer; IC Engines; Energy Conservation and Management; Bearing & Lubrication; Computer Aided Design & Manufacturing; Industrial Engineering, Robotics, Mechatronics and Manufacturing Technology. Operations Research, Production & Materials Management, Quality, Reliability and Maintenance, Productivity Management, Ergonomics, Total Quality Management, Business Process Reengineering, Enterprise Resource Planning.

Discipline of Civil Engineering (Construction Technology & Management)

Structural Engineering, Geo-technical Engineering, Transportation Engineering, Concrete Technology, Construction Engineering and Management, Environmental Engineering, Computer Aided Design and, Applications, Rehabilitation/Maintenance of Civil Engineering Structures.

Discipline of Computer Science & Engineering

Network & Information Security, Computer Architecture, Computer Vision/Graphics, Image Processing, Artificial Intelligence, Databases, Data Mining, Computer/ High-Speed/ Wireless Networks, Protocol Verification, Distributed Computing, Algorithms, Models of Computing. Grid computing, Speech processing/compression techniques, Artificial neural networks, Data warehousing, Mobile agents, Wireless and Adhoc Mobile Network, Wireless Sensor Network.

Discipline of Electrical Engineering (Instrumentation & Control)

Power System Operation & Control; Power Electronics, Electrical Machines & Drives; Computer Aided Analysis of Power Systems; Process Control & Instrumentation, Applications of artificial Intelligence Techniques in electrical engineering, Biomedical Instrumentation and Biometrics, energy management.

Discipline of Electronics & Communication Engineering

Soft Computing, Image Processing, Digital signal Processing, Coding, Antenna, Microwave, Optimization Techniques, Neural Networks, Video, Mobile Communication, Optical/Satellite Communication, MEMS, Bio-medical Signal Processing and other area of Electronics & Communication Engg.

Discipline of Engineering Education

Educational Management (Technical & Vocational Education, Human Resource Development, Organizational Behaviour, Entrepreneurship Development, Industry-institute interaction, Management-related areas like functions, decision making, problem solving, conflict resolution, leadership etc.), Educational Technology (teaching-learning, media/multimedia and evaluation), Curriculum, Educational Psychology and Guidance & Counseling etc.) etc.

Discipline of Management

Entrepreneurship Development and Small Enterprises Management, Total Quality Management, Marketing Management, Human Resource Management, Financial Management, Knowledge Management, Management Information System, Disaster Management, Rural Development, Appropriate Technology, Climate Change & Sustainability Development, Green Technology, Management of Disabilities and Himalayan Studies etc.

Application Form for Admission to Ph.D. PROGRAMMES

Demand Draft of Rs. 5,000/-	
No.:	Date:

To be filled in by the office

Application No.:

Discipline for which Admission to Ph.D. is sought (Please **TICK** the appropriate box)

Whether **Full Time** **Part Time**

From: **PU Chandigarh** **OR IKG-PTU Jalandhar** **HPU, Shimla (IHS)**

- Mechanical Engineering (Manufacturing Technology)** **Engineering Education**
 Civil Engg. (Construction Technology & Management) **Management**
 Computer Science & Engineering **Rural Development**
 Electrical Engg. (Instrumentation & Control) **Environmental Sciences**
 Electronics and Communication Engineering **Himalayan Studies**
 Climate Change **Disaster Management**
 Entrepreneurship and Small Enterprise Management
 Management of Disabilities and Sustainable Development

Affix recent
passport size
photograph

Please read the prospectus carefully before filling each item of the Application Form.

1) **Name (Block letters):**

2) Marital Status: Married/Unmarried

Gender (Male/Female):

3) Father's Name:

4) Mother's Name:

(Please write your name as well as names of your father & mother as per Degree/DMCs of your qualifying examination)

5) Address for Correspondence:

6) Phones with Code (O)

(R)

Fax:

Email

7) Official Address

8) Sponsoring Institute/Organization:

9) Belongs to SC/ST /Physical Handicapped/OBC category (Tick Mark and attach certificate):

10. **Educational and Technical qualification (10th, Degree onwards)**

S.No.	Examination	University/Board	Year	Roll No.	Max. Marks	Marks obtained
10 th	B.Tech/BE/BBA/BA/ Relevant Bachelor Degree					
	M.Tech/ME/MBA/ Relevant Masters Degree					

NOTE: In case the result is declared in Grade Points, an authenticated copy of the formula for conversion to percentage of marks should be attached.

Grade:

Converted to percentage:

