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1. About The University

The National Institute of Technical Teachers' Training and Research (NITTTR), Bhopal (formerly known as Technical Teachers' Training Institute, Bhopal), was established in 1965 by the Government of India as part of an ongoing scheme to enhance the quality of technical education. Initially, the institute offered short-term and long-term teacher training programs for technical educators, aiming to develop professional competence among polytechnic teachers. The objectives were incorporated in EFC Memo no. 23-24/65/T.1 of June 1966. The institute provided need-based training to improve the overall technical education system in the states of Chhattisgarh, Goa, Gujarat, Madhya Pradesh, Maharashtra, and the Union Territory of Daman, Diu, Dadra, and Nagar Haveli.

The NITTTR, Bhopal, is recognized as a centrally funded technical institution governed by the Department of Higher Education, Ministry of Education, Government of India. The Board of Governors, appointed by the Department of Higher Education (MoE), oversees the institute, representing various stakeholders, including the technical education system, industry, society, and the government. Based on recommendations from different review committees appointed by the Ministry of Education (formerly MHRD), the institute was upgraded and renamed as the "National Institute of Technical Teachers' Training and Research (NITTTR), Bhopal" in 2003 (Ministry letter no. F-7-27/2002-TS.IV dated 20 October 2003). This transformation expanded the institute's mandate, enabling it to function as a resource institution at the national and international levels for the entire spectrum of the technical education system.

The NITTTR, Bhopal, has evolved into a major resource institution and a center of excellence for the growth and expansion of the country's technical education system. It plays a crucial role in contributing to a diverse labor market beyond polytechnics and engineering colleges. The institute serves professional institutions, industry, public service organizations, vocational education, and the community at large, addressing their human resource development needs. NITTTR Bhopal has demonstrated its potential to cater to the training and development requirements of developing countries' technical education systems. Academically, it operates at the intersection of Technological, Pedagogical, and Content Knowledge areas.

NITTTR Bhopal has attained the status of a Deemed University (under the Distinct category) and is significantly contributing to implementing the National Education Policy 2020 in its true spirit. The institute is transitioning into a multidisciplinary institution of higher education, offering interdisciplinary programs that transcend traditional boundaries. All programs, courses, learning practices, and assessment mechanisms will have strong pedagogical underpinnings rooted in experiential learning, critical thinking, and problem-solving approaches. In line with NEP 2020's vision, NITTTR Bhopal aims to prepare self-driven, motivated educators with a learner-centric focus, incorporating a flexible multi-entry and multi-exit system across its diverse academic offerings.

2. Vision, Mission of The University

2.1 Vision Statement:

To be the world class leader for integrated development of technical education and training systems catering to the changing needs while achieving highest level of client satisfaction, quality, professional values and contributing to technological, economic and social development of the country.

2.2 Mission Statements:

- Incorporate principles of leadership in capacity building in technical teacher education through its courses encompassing future of work, green and sustainable development, women led development, development of faculty with diverse abilities and harnessing technology, etc.
- Provide leadership in technical teacher education that result in all technical faculty being made abreast with curriculum upgradation, future of work skills, pedagogy in the domain of technical teacher education.
- Intensify teacher education for improving quality and performance of technical institutions.
- Make the technical education a vibrant learning system for producing competent manpower to steer technological and economic development.
- Provide a wide spectrum of client driven services and products through various modes.
- Strengthen networking and synergic partnership with technical institutions, industries, field agencies, and premier national and international organizations.
- Promote creativity, innovations, research and development, professional management practices, concept of learning organization, benchmarking and economics of education amongst client systems.
- Enthuse the spirit of professionalism, values, and work ethics, networking, and partnership with industry and other organizations and technical institutions.

The Schools under the National Institute of Technical Teachers' Training & Research Bhopal, Deemed to be a University under a distinct category, are committed to providing a transformative educational experience aligned with NEP 2020 guidelines. It embraces a learner-centric approach with active participation. The schools are offering interdisciplinary Ph.D. for **in-service teachers, working professionals/ industry personnel, and enthusiastic learners** for capacity building and to enhance their professional skills.

The university comprises the following Schools:

- **School of Sciences:**
  - i. Department of Applied Science Education (Physics, Chemistry)
- **School of Engineering & Technology:**
  - i. Department of Civil& Environmental Engineering Education

ii. Department of Computer Science and Engineering Education
iii. Department of Electrical& Electronics Engineering Education
iv. Department of Mechanical Engineering Education

- **School of Management Studies:**
  i. Department of Management Education
- **School of Creative Education and Liberal Arts:**
  i. Department of Curriculum Development and Assessment Education
  ii. Department of Media Research and Development Education
  iii. Department of Technical Vocational Education & Research

3. School of Sciences

The School of Sciences is committed to providing a transformative educational experience aligned with NEP 2020 guidelines. It embraces a learner-centric approach with active participation. School of Sciences is comprised of the following departments:

1. Department of Applied Science Education

The Department of Applied Science Education has existed since 1965 in the Institute. The Department is recognised for many significant contributions in training and research. With an orientation of interdisciplinary learning, the department promotes practical aspects of Applied Sciences. It offers various training programs in Physics, Mathematics, Chemistry, and Science education with practical applications in engineering and technology. The main focus of the research activities in applied sciences is theoretical and experimental, including Space Plasma Physics, Space Weather and Global Positioning Systems (GPS), Atmospheric Research in Antarctica/Arctic, Laser Physics, Free Electron Laser theory, Undulator characterisation, Nanoscience, Photoluminescent Nanomaterials, MEMS, Semiconductor package design, Sensors Technology, Physics Education, Chemical Sciences, Computer-Aided Drug Design, Drug Design, and Discovery, Nanomaterials, and Chemistry Education.

The department has contributed to various curriculum revision projects in Gujarat, Chhattisgarh, and Maharashtra in Physics, Chemistry, Mathematics, statistics, Chemical, Ceramic, Plastic, Textile, Surface coating, and Computer-Aided costume and dress design-making engineering. These curriculums align with NEP 2020 and are specially oriented to emerging technologies. The Department of Applied Science Education has also conducted several workshops, seminars, and national and international conferences for technical education teachers in the areas of science and engineering.

Table 1: Departments and Faculty

Schools	Department	Faculty
School of Sciences	Applied Science Education	Dr. Bashirulla Shaik
		Dr. P. K. Purohit
		Dr. Hussain Jeevakhan

4. School of Engineering & Technology

Each department offers a multidisciplinary Ph.D. in emerging areas. The Ph. D. was coined in the interdisciplinary domain of knowledge creation among enthusiastic learners. All the engineering departments consist of faculties that are actively involved in industry-oriented research using the state of art facilities. All the departments are experts in designing and implementing outcome-based curricula, outcome-based teaching-learning, and outcome-based assessments. The faculty members carry out significant and sustainable research in every department. The enthusiastic learner can gain expertise in the chosen area through in-depth research and analysis.

A well-established centre of excellence, SEIMENS INDUSTRIAL AUTOMATION CENTRE provides smart, innovative equipment and software for advanced research. Every engineering department competently designs and develops new laboratory /virtual experiments. Every department collaborates with other departments or research centers to foster interdisciplinary research and innovation.

School of Engineering and Technology comprises the following departments:

1. Department of Civil & Environmental Engineering Education
2. Department of Computer Science and Engineering Education
3. Department of Electrical& Electronics Engineering Education
4. Department of Mechanical Engineering Education

Table 2: Departments and Faculty

Schools	Department	Faculty
School of Engineering and Technology	Civil & Environmental Engineering Education	Dr. A. K. Jain
		Dr. Ramesh Gupta Burela
		Dr. R. K. Dixit
		Dr. V. D. Patil
	Computer Science and Engineering Education	Dr. M. A. Rizvi
		Dr. R K. Kapoor
		Dr. Rupesh Kumar Dewang
		Dr. Sanjay Agrawal
		Dr. S. Ganapathy
	Electrical Engineering Department of Electronics Engineering	Dr. Anjali Potnis
		Dr. A. S. Walkey
		Dr. C. S. Rajeshwari
		Dr. Manickavasagam
		Dr. Pallavee Bhatnagar
		Dr. Ranjit Singh
		Dr. Sachin Tiwari

Schools	Department	Faculty
		Dr. Seema Verma
		Dr. Suman Pattnaik
	Mechanical Engineering	Dr. A. S. Rocha
		Dr. L. Suvarna Raju
		Dr. Manish Bhargava
		Dr. Ravi Kumar Gupta
		Dr. Sharad K Pradhan
		Dr. Vandana Somkuwar
		Dr. Vipin Kumar Tripathi

5. School Of Management Studies

The School of Management Studies at NITTTR Bhopal provides a transformative educational experience. Our mission is to prepare learners to excel in the dynamic and intricate business world while nurturing future leaders, entrepreneurs, and scholars who can make meaningful contributions to society. The school fosters a culture of innovation, collaboration, and ethical leadership, challenging students to think critically, creatively, and responsibly. The Department of Management Education offers a comprehensive range of Doctoral programs within the School of Management Studies. This includes emphasising leadership, policy analysis, and a **PhD in Management**. These programs cater to aspiring professionals and scholars, equipping them with the necessary knowledge and skills.

Additionally, the school is poised for growth, with plans to introduce two new departments: **Economics** and **Entrepreneurship**. These upcoming departments will further enhance our commitment to excellence in education, research, and community engagement.

The domain of Public Policy and Management is undergoing a transformative shift driven by the rapid pace of digital innovation. This field now encompasses careers that harness the power of technology and data to formulate, implement, and evaluate policies and strategies for effective governance and public service delivery. Professionals in this domain acquire interdisciplinary skills in digital policy analysis, e-governance, data analytics, and digital transformation management, enabling them to navigate the complexities of policymaking in an increasingly digitised world. With a deep understanding of the interplay between policy, technology, and societal dynamics, these professionals play a crucial role in promoting digital inclusion, enhancing transparency and accountability, and leveraging emerging technologies to address complex societal challenges. As governments and organisations embrace digital transformation, the demand for expertise in developing and executing digitally-enabled public policies and strategies has surged, opening up new career avenues for those with the necessary skills and knowledge.

Table 3: Departments and Faculty

Schools	Department	Faculty
School of Management Studies	Management Education	Dr. Aashish Deshpande
		Dr. Parag Dubey
		Dr. R. K. Dixit
		Dr. Roli Pradhan

6. School Of Creative Education And Liberal Arts

The School of Creative Education and liberal Arts provides a research platform for technical teachers, researchers, industry persons, in-service teachers, and enthusiastic learners to build vocational, media, curriculum, and entrepreneurship development capacity. The departments provide research platforms for future AI, AR, and VR-based technologies, integrating them with industrial challenges to offer social and sustainable solutions in various fields. Another key area of the school is strengthening the enthusiastic learner linkages towards national and international agencies, universities, and industries to uplift the individual research domain. Some major research areas are Innovations in Curriculum Design & Development, Curriculum Implementation, Curriculum Evaluation, Impact Study of curriculum developed for different states, and Innovations in Assessment Practices, Social Media Management, Digital Content Resource Optimization, AI and Digital Media, Smart Journalism, Technology Integration and Pedagogical Development, Immersive Media, and MOOCs Effectiveness. Skill Development, Vocational, Quality Systems, Product Engineering and Design Thinking, Entrepreneurship Development, Engineering Education, Technical Education, Recognition of Prior Learning, Skill Gap Analysis

Table 4: Departments and Faculty

Schools	Department	Faculty
School of Creative Education and Liberal Arts	Curriculum Development and Assessment Education	Dr. Anju Rawlley
		Dr. J. P. Tegar
	Media Research and Development Education	Dr. S. S. Kedar
		Dr. Suman Pattnaik
	Technical Vocational Education& Research	Dr. A. K. Sarathe
		Dr. Anjana Tiwari
		Dr. Manish Bhargava
		Dr. R. P. Khambayat
		Dr. Ranjit Singh
		Dr. Sachin Tiwari
		Dr. Nishith Dubey

7. Essential Qualification for Admission to the Ph.D.

7.1 Table 5: Essential Qualifications

Schools	Department	Major Thrust Areas	Essential Qualifications
School of Sciences	Applied Science Education	Space Plasma Physics, Space Weather and Global Positioning Systems (GPS), Atmospheric Research in Antarctica/Arctic, Laser Physics: Free Electron Laser theory, Undulator characterisation, Nanoscience: Photoluminescent Nanomaterials, MEMS, Semiconductor package design, Sensors Technology, Physics Education. Chemistry, Computer Aided Drug Design, Drug Design and Discovery, Molecular Modelling, Computational Chemistry, Nanomaterials, Chemistry Education.	Master's degree in relevant stream of Science with 55% or equivalent CGPA.
School of Engineering and Technology	Civil and Environmental Engineering Education	Highway Materials, Soil-Structure Interaction, Multifunctional smart composites, computational solid mechanics, AI & ML in CAE, Urban and Regional Planning, Sustainable Development and Environmental Planning, Land Economics and Valuation, Urban Renewal and Redevelopment, Real Estate Development and Management, Infrastructure Planning and Financing	Master's degree in relevant stream of Engineering/Technology with 55% or equivalent CGPA.
	Computer Science and EngineeringEducation	AI & ML, Cyber Security, Adhoc Networks, Blockchain Technology, Data Science, Big Data Analytics, Data Engineering, Cloud Computing, Data Security, Image Processing, Real-Time Systems, Software Engineering, Green Computing, Grid Computing, Bioinformatics, Internet of	

Schools	Department	Major Thrust Areas	Essential Qualifications
		Things, Educational Approaches using emerging computing technologies.	
	Electrical & Electronics Engineering Education	Renewable Energy Systems, Smart Grid Technologies, Power System Control, system optimization, Power System Restructuring, Low Voltage Switch Gear, Electric Vehicle Technology, Multi LevelInverters, Power Converters, Power Quality Improvement, Drives and ControlPower Converters, Industrial Drives, Artificial Intelligence and Machine Learningapplications to Power Systems, Artificial Intelligence and Machine Learningapplications to Power Electronics, Digital Twin, Industrial Automation, Electrical and Energy studies, Hydrogen fuel cells, Battery technology. Wireless Networking, Flying Adhoc Networks & their VLSI implementation, Smart agriculture system using Drone, VLSI for AI, Digital Twin, Semiconductor Technology, Semiconductor Packaging, 5G -6G Communication, IoT, Image and Signal Processing, Digital Signal Processing, Evolutionary Computing, Antenna Design, Biomedical Signal Processing, Deep Learning/CNN and its Application.	
	Mechanical Engineering Education	Additive Manufacturing, Green Manufacturing, Advanced Composite Materials, Computer Aided Design and Manufacturing, Design Optimization, Friction stir welding and Process, Industrial Design, Product Development for Elderly, Product Informatics, Robotic Welding.	

Schools	Department	Major Thrust Areas	Essential Qualifications
School of Management Studies	Management Education	Management, Human Resources, Marketing, Finance, Education Management, Business Analytics, Green Technology, Econometrics, Social Interventions& Entrepreneurship, Public Policy	Master's degree in relevant stream with 55% or equivalent CGPA.
School of Creative Education and Liberal Arts	Curriculum Development and Assessment Education	Innovations in Curriculum Design & Development, Curriculum Implementation, Curriculum Evaluation, Impact Study of curriculum developed for different states, Innovations in Assessment Practices.	Master's degree in any stream of discipline with 55% or equivalent CGPA.
	Department of Media Research and Development Education	Social Media Management, Digital Content Resource Optimization, AI and Digital Media, Smart Journalism, Technology Integration and Pedagogical Development, Immersive Media, and MOOCs Effectiveness.	
	Technical Vocational Education & Research	Skill Development, Vocational, Quality Systems, Product Engineering and Design Thinking, Entrepreneurship Development, Engineering Education, Technical Education, Recognition of Prior Learning, Skill Gap Analysis	

8. Admission Procedure

Admission to the PhD programme involves a rigorous selection process, ensuring that qualified candidates join the vibrant academic community at the university. Admission to the Ph. D. programme will be given through the following process:

a) NITTTR Bhopal shall notify predetermined seats (reservation of seats will be as per the Govt. of India norms). The vacant seats, if any, out of category-I candidates shall be filled through the Entrance Test (category-2).

b) The admission process will be through the following two categories:

Category-1:

A candidate who qualifies either of the following is considered for admission process under exempted from the entrance test, and based on the interaction (Total Marks – 50), a merit list will be prepared to mention selected/Not selected candidates:

i. UGC-JRF or Joint CSIR-UGC JRF in the main subject (with validity period).
ii. UGC-NET or Joint CSIR-UGC-NET/UGC NTA/Teacher Fellowship holder/ DST Inspire fellow (with validity period) in the main Subject.
iii. GATE (with validity period)/ GPAT (with validity period) in the main subject.

Category-2:

i. 50% weightage of the entrance test marks (Maximum 50 Marks, minimum 25 marks are required to qualify)
ii. 20% weightage will be given to experienced candidates having a maximum of 4 years of experience. Only completed years will be counted on the last date of application form submission, five marks for each year of experience. (Maximum 20 Marks)
iii. 30% weightage will be given on the basis of a statement of purpose for a PhD and a Personal Interview. (Maximum 30 Marks)

Based on the merit and reservation criteria, the vacant seats will be offered to the candidates.

c) The vacant seats, if any, out of category-1 candidates shall be filled through the Entrance Test (category-2). There will be single entrance test for Main and Allied Subjects in each Department.

d) The admission under category-2 (Through Entrance Test) shall be made in order of merit and preference, subject to availability of seats and experts for guidance /supervision in the area of Research on the recommendation of admission committee.

e) A candidate may apply for admission to Ph.D. Course (through Entrance Test) in the main subject (in which he/she has passed his/her Master's Degree) as well as allied subjects, if any.

f) NITTTR Bhopal shall hold Entrance Test as per schedule notified subject to availability of seats in each department.

g) The Entrance Test Paper will consist of Objective type questions as per following scheme:

Marks: 100
Number of MCQ Questions: 100
Total Duration: 2 (Two) hours.

h) The syllabus of the Entrance Test shall consist of up to 50% of Research methodology and remaining shall be subject specific. Syllabus of the Entrance Test will be available on the university website. There shall be no negative marking.

i) The candidate will be required to secure 50% marks in Entrance Test for being eligible for consideration to Ph. D. programme.

j) There will be no provision for re-evaluation of answer books for the paper of Ph.D. Entrance Test.

9. Fee Structure for Ph. D.

S. No.	Description	Fees (in Rs.)	Payable
1.	Tuition Fees	8,000 /- 25,000/- For Sponsored Candidates	**Per Semester**
2.	Student Welfare Fund	600/-	
3.	Student Medical Fund	400/-	
4.	Institute Development Fund	2500/-	
5.	Student Activity fee	1000/-	
6.	Library Fee	1000/-	
7.	Central Computing Facilities, Internet Fee,	1500/-	
At The Time of Admission-Non-Refundable			
8.	Academic Fee (Including Degree, Migration, Character, ID card): Onetime fee	2000/-	**One Time Fee**
9.	Industry Immersion Programme	3000/-	
10.	Convocation fee	2000/-	
11.	Alumni fee	1000/-	
12.	Enrollment Fee: Registration, Course Work and Examination Fee	8,000/-	
13.	Student Insurance Fee.	300/-	**Per annum**
At The Time of Thesis Submission and Evaluation-Non-Refundable			
14.	Thesis Submission and Evaluation	20,000	**One Time Fee**
At The Time of Admission-Refundable			
15.	Caution money	5000/- Onetime	**One Time Fee**

The admitted student must deposit the semester fees through the institute web portal/payment gateway. In addition to the above-mentioned fee, the candidate must deposit hostel lodging and boarding charges as per the norms before the start of the semester.

10. Admission Schedule

The category-wise (category 1 and 2) admission schedule will be posted on the Institute's website. Candidates are advised to check the website (www.nitttrbpl.ac.in) regularly for updates.

11. Fellowship/Scholarship

Candidates with valid score of qualifying examination will be offered essential fellowship/ scholarship as per the rule of government of India.

12. Hostel Accommodation

Hostel accommodation is available based on the merit of admission to the candidates. Preference will be given to outstation candidates. If the accommodation is further available, the local candidates may also be considered for hostel accommodation.

13. Hostel Fee Details

S. No	Room Category	Fee Per Semester	Remark
1.	Single Occupancy Non-AC (per person)	6000/-	Subjected to the availability
2.	Double Occupancy Non-AC (per person)	4000/-	
3.	Single Occupancy AC with attached toilet	72000/-	
4.	Double Occupancy AC with attached toilet (per person)	40000/-	
5.	Hostel Maintenance Fee (Electricity, Water, Sanitation	10500/-	

14. Contact Details

Admission Office: 0755-2661600-602 Ext. 448, Email: admission@nitttrbpl.ac.in

Coordinator Admission Cell - Prof. Manish Bhargava: +91-80057 25558

Ph.D. Coordinator – Prof. Ramesh Gupta Burela:+91-98916 48578

Ph.D. Co-Coordinator– Prof. Sachin Tiwari: +91-94246 14502

Contact Numbers and Email-ID

S. No.	Name and Designation	Contact Numbers and Email ID
1.	Dr. Sanjay Agarwal Dean Academic Research	0755-2661600-602 Ext. 393 sagrawal@nitttrbpl.ac.in
2.	Prof. Manish Bhargava Coordinator Admission Cell	0755-2661600-602 Ext. 438 mbhargava@nitttrbpl.ac.in
3.	Dr. Bashirulla Shaik Member Admission Cell	0755-2661600-602 Ext. 385 bshaik@nitttrbpl.ac.in
4.	Dr. Izhar Ahmad Member Admission Cell	0755-2661600-602 Ext. 384 iahmad@nitttrbpl.ac.in
5.	Dr. Prakash N Hardaha Member Admission Cell	0755-2661600-602 Ext. 434 pnhardaha@nitttrbpl.ac.in