



Defence Institute of Advanced Technology
(Deemed to be University) under section 3 of UGC Act 1956),
Girinagar, Pune-411025

Ph.D. Programmes- JULY- 2023

Applications are invited for admission to Ph.D. Programme, as per description below.

Introduction:

Defence Institute of Advanced Technology (DIAT) is Technological Institute of National repute for higher learning. The Institute imparts education and training in Advanced Technologies used for Tri-services, DRDO, DPSUs etc. DIAT found its roots in 1952, as a training institute has grown over the years into a premier teaching and research institute for DRDO and the Armed Forces.

The main focus of the institute is to evolve as an Innovative Unique Research University to develop indigenous contemporary Defence related technologies and also to provide technological solutions to the Services. DIAT is committed to generate high quality and talented human resource in broad areas of Defence Technologies to cater the needs of DRDO, Armed Forces and other Defence establishments.

DIAT offers admission to **Ph.D (full-time)** in the frontier areas of Aerospace Engineering, Mechanical Engineering, Electronics Engineering, School of CSE&DS, Applied Physics, Applied Chemistry & Metallurgical & Materials Engg, Limited few Institute Fellowships are available.

Department /School -wise area of Research are as under: [Institutional Scholarship Category].

In addition, Project Staff from DRDO Laboratories & DIAT (JRF/SRF/PA) & Candidates with CSIR-NET, DST, UGC-NET or any other National fellowship / scholarship available to them are also eligible to apply for Ph. D admission in any subject area of the concerned deptt / school.

Sr. No	Department / School	Subject / Research Area
1	Metallurgical and Materials Engg.	3D, 4D Printing Biopolymers, Scaffolds, nanocomposites, Phase Changing Fabrics, Composite Hydrogen Storage, Materials Science, Polymer Nanocomposites, Supercapacitor and battery type electrode materials, Piezoelectric materials, Armor materials, Coating materials, Composite materials, High Entropy Alloys, Additive manufacturing, Texture, Thermomechanical Processing of Metallic Materials, Electrical Steel, Additive Frictions Stir Processing, Welding, bulk Metallic Glass and Nano Materials, Computational Materials Engineering, Energy Materials, Machine Learning, Microstructural modelling, Modeling and Simulation of Batteries and Supercapacitors.
2	Electronics Engg.	Signal & Image Processing, Machine Learning, Human Machine Interaction, BCI, UAV Robotics, Automotive Radar, Wearable Antenna, RFID, Smart Glove, Active antennas, Textile Antennas, Reconfigurable antennas, Semiconductor devices, Low Power Circuits, VLSI Circuits, MOSFEIS, 2D Materials, FPGA, AI & ML for Devices, RF Circuit design, RF/Microwave components design.
3	School of Computer Engg & Mathematical Science	Quantum Machine Learning, Cyber Physical Systems, Big Data, AI, AR / VR, Cyber Security, Cryptography, Secure Software Engineering, AI & ML, DL, Digital Forensics, Deep Learning, Computer Vision, Offensive Security, OS Security, Natural Language Process, Malware Analysis, Programme Optimisation. Numerical Solution to Partial Differential Equation using Finite Element Methods / Boundary Element Methods / Fictitious Domain Embedding Methods, Image Processing, Fluid Mechanics / Bio Mechanics, Machine Learning in Physiological Dynamics, Machine Learning Deep Learning, Computer Vision, Medical image Analysis, Self Driven Cars, Data Science, Applied Mathematics.
4	Aerospace Engg	Flight dynamics, Aerodynamics.
5	Applied Chemistry	Nanomaterial chemical synthesis or QDs noble metal & metal hybrid chalcogenides for opto-electronics & energy application, Solar Photocatalysis for Hydrogen Generation Ionic liquids & application, catalytic hydrogen combustion, liquid membranes, phase change and energetic materials, Nanomaterials, Hybrid

		Nanocomposites, Catalysis, Organic Nanomaterials, Biomimicry, Thermal Analysis, Organic Synthesis, Energetic materials, nanomaterials.
6	Mechanical Engg.	CAD/CAM/Robotics, Manufacturing Consideration in Design, Fabrication, Characterization and Processing of Composite Materials, High Speed machining / green machining of aerospace materials, Precision Robotic Welding of Aerospace Materials, Micro manufacturing / Micromachining of “ Difficult to cut materials”, Surface Engineering, Additive Manufacturing (3D Printing), Design & Analysis of Composite structures, Fracture Mechanics, Functionally Graded Structures, Bonded Patch repair for damaged FRP Composite Structures. Hyper Velocity Impact, Ballistic Penetration, Dynamic Indentation, FEM, Composite structures, Material repairing technologies, FEA, CFD, Fluid Mechanics, Heat transfer, Composite structure, Fracture Mechanics, Fluid Mechanics, Heat Transfer, Flow separation and control, Blast, Shock Tube research, Fluid-structure Interaction, Terramechanics, CFD, Three-phase flow, Fluid Mechanics.
7	Applied Physics	Electronics Nanotechnology, Sensor Technology, Physics, Electronic Nose Development, Machine learning, Composite for EMI shielding & stealth, Sensor Development, Renewable Energy, Fiber Optics Sensors, Laser Technology, Optical System Design, Quantum Random Number Generator, High Speed Optical Communication Systems, Nanodiamond, Femtosecond Solid-state and Fiber Laser Technology, High-energy laser sources, Ultrafast Nonlinear Frequency mixing processes, Terahertz Photonics, Terahertz Spectroscopy and Imaging, AI/ML in Terahertz Imaging and Advanced Optical Communication, Free-Space Optical Communication, Under-water Optical Communication, Optical Instrumentation and Bio-Photonics.
8	School of Robotics	Robotics, Control Navigation, SLAM, Control and Motion Planning of Automation Systems, AI & ML based Approaches for Robotics.
9	School of Quantum Technology	Quantum Communication, Quantum Metrology & Sensing, Quantum Simulation & Quantum Machine learning.
10	Technology Management	Strategy Management, HR Management.

Eligibility:

a) Qualification

- A candidate, seeking admission to the Ph.D. program, shall be required to have passed the qualifying examination securing at least 55% marks or equivalent CGPA/DGPA. A relaxation of 5 % of marks may be allowed for those belonging to SC/ST/OBC (non creamy-layer) / PWD - (Divyang) categories. The qualifying degrees are: -
- a) Master of Engineering/Master of Technology (or equivalent) for Ph.D. in Engineering/Science.
OR
- b) Master in Science (M.Sc. or equivalent) for Ph.D. in Science
OR
- c) A 1 year / 2 semester master's degree programme after a 4-years / 8 semesters bachelor's degree programme ,provided that a candidate seeking admission after a 4-years/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed. A relaxation of 5% marks or equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/ differently abled/EWS.
- d) For Dept. of Technology Management:
 - i) MBA/MMS/PGDM (2 years) from reputed institutes / M.Sc/ME/M.Tech
OR
 - ii) M.Phil (Defence and Strategy Studies)
OR

- iii) A 1 year / 2 semester master's degree programme after a 4-years / 8 semesters bachelor's degree programme ,provided that a candidate seeking admission after a 4-years/8-semesters bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed. A relaxation of 5% marks or equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/ differently abled/EWS.
- A candidate who has passed the qualifying examination with the requisite percentage of marks as prescribed above and who fulfill the following requirement may be considered for admission to the Ph.D. programme:-
 - a) Qualified in a national level test such as, CSIR/UGC NET, JEST, Graduate Aptitude Test for Engineering (GATE), Rajiv Gandhi National fellowship, NBHM etc. subject wise and category wise GATE/NET cut off will be decided by DIAT.

OR

- b) A candidate who is a recipient of National Doctoral Fellowship or other fellowships from government / semi-government organization such as Council of Scientific and Industrial Research (CSIR), University Grants Commission (UGC), INAE, All India Council for Technical Education (AICTE), Department of Science and Technology (DST), Dept. of Biotechnology (DBT), Defence Research and Development Organization (DRDO), Department of Atomic Energy (DAE) and similar organizations.

b) Age limit

Not above 35 years as on July, 01, 2023.

Relaxations as per Govt. of India rules apply to SC / ST / OBC / PH applicants.

Note:-

- Women candidates are encouraged to apply for admission.
- The Institute shall implement the reservation policy in Ph.D. admission in accordance with relevant act of Parliament being in-force from the time.
- A PWD (Divyang)/ SC/ST/OBC (non-creamy layer) candidate shall not get double benefit of being an SC/ST/OBC (non-creamy layer) as also a PWD candidate.
- **Project Staff from DRDO Laboratories & DIAT [JRF/SRF/RA] working under sponsored projects may be allowed to register for PhD, subject to fulfilling eligibility criteria and also qualified GATE/NET examination.**

Selection:

Admission to Ph.D. will be based on the performance in the entrance exam (written test) conducted by the department concerned followed by a personal interview.

Financial Assistance:

a) The selected Ph.D. candidates against this admission notice, admitted as full-time Ph.D. students [Institutional Scholarship category] will be provided financial assistance as per Institute rules, in force from time to time. Currently institutional fellowship for first two year is of Rs. 31000/- and after that Rs. 35000/- upto 05 years / till the submission of thesis, whichever is earlier. The Ph.D. students (who are provided Institute fellowship) may also be assigned 4-6 hours per week of teaching/research assistantship for conduction tutorial or laboratory work and evaluation.

b) In addition to the Ph.D. scholarship, such candidates would also be entitled for contingency grant (presently **Rs. 15,000/-** per year) in accordance with the decisions of the Institute.

Boarding / Lodging:

Selected candidates will be provided hostel accommodation (Exclusive Girls Hostel available). Mess facilities are available on payment basis. The present monthly charges towards boarding and lodging are Rs. 7000/- (subject to revision). However, Rs. 40,000/- is to be deposited at the beginning of each Semester towards lodging and boarding charges, in advance. A security deposit of Rs. 10,000/- would need to be paid to Hostel Office.

How to Apply:

Application form is available at Institutes website <http://www.diat.ac.in> . Application fee of **Rs. 500/-** for General / OBC category (**Rs. 250/-** for SC/ST & Women candidates) per programme is required to be paid either online (through State Bank collect) or by Demand Draft drawn in favor of Vice Chancellor, DIAT, Pune, payable at Pune-411025. The filled in application form in the prescribed proforma has to be forwarded in a sealed envelope, super scribed "Application for Admission to PhD Programme in the Department / school of _____" to the Joint Registrar (Academics), Defence Institute of Advanced Technology, Girinagar, Pune 411025 along with the DD / online generated receipt and self certified copies of mark lists, certificates and other testimonials. These documents should reach DIAT latest by on or before **09th June 2023**. Postal delay will not be entertained. **Candidates seeking admission to more than one Department need to apply separately.**

General Information:

- Since the applications may be short listed, mere possessing of the prescribed qualifications would not entitle a person to be called for test/interview. The Institute may restrict the number of candidates to be called for test / interview to a reasonable limit, on the basis of qualifications / marks higher than that of the minimum prescribed in the advertisement.
- For short listing of candidates, the department screening committee may decide subject-wise and category-wise GATE/NET Cut off.
- Application once made will not be allowed to be withdrawn and fees once paid will not be refunded on any count nor can it be held in reserve for any other admission process
- Canvassing in any form will be a disqualification. Postal delay shall not be entertained.
- No correspondence will be entertained in respect of advertisement, interview, selection etc. The list of Shortlisted candidates will be displayed on <http://www.diat.ac.in> website along with other information viz. date of Interview / Written Test / Result. The candidates are requested to check the DIAT (DU) Website <http://www.diat.ac.in> for related information from time to time.

Course Fee and Other Charges:

Selected candidates for the Ph.D programmes are required to pay Semester Fee @ **Rs. 31,000/-** per semester (for Gen & OBC) and @ **Rs. 18,000/-** (for SC & ST) payable immediately on joining and a caution deposit of **Rs. 10,000/-**, & **Rs.4000/-** as one time fee, commencing from July 2023. Fees payable up to submission of thesis by candidate admitted to Ph.D programme shall be as prescribed by the Institute from time to time.

Important Dates:

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| ➤ Last Date of receipt of Hard copy of application | : 09th June 2023 |
| ➤ Tentative Date of Interview / Written Test | : 3rd/4th week of June 2023 |
| ➤ Tentative date of commencement of the programme | : 1st week of July 2023 |
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