



डा बी आर अम्बेडकर राष्ट्रीय प्रौद्योगिकी संस्थान, जालन्धर-144011
Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY, JALANDHAR - 144011

Admission to Ph.D. (Part Time) Programme in Engineering, Sciences, Humanities and Management for the Odd Semester of the Academic Year 2021-2022

Applications are invited for admission to Ph.D. (Part Time) Programme in Engineering, Sciences, Humanities and Management for the Academic Year 2021-22. The details viz. Broad areas of Research, Eligibility Criteria, Selection Procedure, etc. are given in this advertisement.

How to apply: The link to fill the online application form can be accessed through Institute website www.nitj.ac.in. Please submit separate application forms, if applying for more than one programme. An Application Fee of Rs.1000/- (Rs.500/- for SC/ST/PWD candidates) is required to be paid online. The candidates are required to apply online and there is no requirement to send the Hard Copy of the application form to the Institute. Application fee shall not be refunded in any case.

Last date for submission of online application form is 08.08.2021.

The candidates are advised to visit the Institute website www.nitj.ac.in for updates.



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A) Ph.D. (Part Time) Programme:

Sr. No.	Department Email address of HOD	Ph.D. (Part Time) (Broad Areas of Research)
01	Biotechnology obt@nitj.ac.in	Bioprocess Engineering, Environmental Biotechnology, Microbial and Enzyme Biotechnology, Biomaterials, Biofuels and Bioenergy, Enzyme Engineering, Bioinformatics, Biofilm Engineering, Ecotoxicity of Emerging pollutants, Applied Microbiology, Nanomaterials, Biopolymers, Aerogels
02	Chemical Engineering och@nitj.ac.in	Hydrocarbon Engineering, New and Renewable Energy, Waste Water Treatment, Biofuels and Bioproducts, Conversion of Biomass to value added products, Lignin Valorisation, Solid waste Management, Thermochemical processes and Reaction Kinetics, Multiphase Reactors/Flow, Advanced Oxidation Processes, Photo-nano-catalysis, Solid Waste Utilization and Management, Chemical Reaction Engineering, Environmental Engineering, Pollution Abatement, Advanced oxidation processes, Heterogeneous/Ozonation Processes, Nanomaterials and Nanocomposites, Photo nano-catalysis, Applied Photocatalysis, Nanomaterials in Renewable Energy Applications, Nanomaterial- Embedded PVA films for Environmental Applications, Green Composite Materials, Chemical Process Design, Transport Phenomena, Biodegradable and Edible food packaging films.), CO2 Sequestration, Edible Films and Coatings, Paper-based Microfluidic Device, Mathematical Modeling for Nanoplasmonics, Non-Newtonian Computational Fluid Dynamics (NNCFD), Modelling of bio-fluid mechanics, Antimicrobial Polymeric Coatings, Surfactant Enhanced Drying of Polymeric Coatings, Flame Retardant Polymeric Coatings, Modeling and Simulation of Multicomponent Polymeric Coatings, Chemical process safety, Fire and safety, Rheology of complex fluids
03	Civil Engineering oce@nitj.ac.in	Structural Engineering, Geotechnical Engineering, Transportation Engineering, Environmental Engineering and Water Resources Engineering
04	Computer Science & Engineering ocs@nitj.ac.in	Artificial Intelligence, Big Data Analytics, Cloud Computing, Computer Networks, Cyber Warfare, Data Hiding, Data Science, Databases & Data Mining, Distributed Network, Image Processing, Information Security, Machine Learning, Mixed criticality systems, Multimedia Streaming, Real time scheduling Theory, Safety critical systems, Scientific Computing, Soft Computing, Software Defined WSN's, Software Engineering, Steganography, Wireless networks, Pattern Recognition, Internet of Things, Network Security, Biometrics Authentication, Ad hoc Networks, Adversarial ML, Explainable AI, Mobile Ad hoc Networks (MANETs), Probabilistic Data Structures, Deep Learning, Parallel and Distributed Processing, Fault Tolerant, Mobile Computing, Internet of Things
05	Electrical Engineering oe@nitj.ac.in	Control System, Nonlinear Control, Observer Design, Control of Microgrid, Power System Economics, Artificial Intelligence based Electricity Market Design, Renewable Forecasting, Power System Flexibility, Energy Storage, Field computations in HV environments, E-field reduction using Optimization techniques, Substation design, Illumination modeling, and design, Condition monitoring of transformers, Bio-systems, Exposure studies, Machine Learning and autonomous systems, Artificial Intelligence and computer vision.
06	Electronics & Communication Engineering oe@nitj.ac.in	Games for Learning/ Health, Assisted Technologies, Signal/Image Processing, Biomedical Signal/Image Processing, E-Healthcare/Telemedicine, VLSI Design, Nano Devices, Digital Design, Biomedical Signal and Image Processing, Digital Signal Processing and its Applications, Nanoelectronics, VLSI Design, Semiconductor Device, ECE, Cognitive Radios, Communication Systems, Signal Processing, VANETs, Low Power VLSI Design, Nanoelectronics, Nano Scale devices, 2D Materials, Computer Networks, Machine-to-Machine Communications, MAC Layer protocols for IoT applications, Signal Processing over Communication Networks, RF Amplifier, Electromagnetic, RF Circuits Design, Wireless Sensor Network, Machine Learning, RF and microwave components Designing, Antenna Designing
07	Information Technology ocs@nitj.ac.in	Cloud Computing, Fog Computing, Internet of Things, Soft Computing, Machine Learning, Block Chain, Artificial Intelligence

08	Instrumentation & Control Engineering oi@nitj.ac.in	Wireless Network including Wireless Sensor Network, Control System, Sliding Mode Control, Fractional Order Control, Robotics & AI and Mobile Robot Perception, Applications of Machine Learning, Model Order Reduction Techniques, Renewable Energy, Control System, Process Control & Instrumentation, Application of Soft Computing Techniques to Chemical Applications, Model Predictive Control, Renewable Energy Applications Biomedical Instrumentation, Process Dynamics Control and Application, Soft Computing Applications, Machine and Deep Learning, Computer/Machine Vision, Control Theory and Automation, Biomedical Engineering, Modelling of Physiological Systems and Associated Diseased Conditions, Applications of Machine Learning to Biomedical Systems, Low Temperature Instrumentation, Cryogenics, Thermal properties for Space Applications
09	Industrial & Production Engineering oi@nitj.ac.in	Experimental & Computational Fracture Mechanics, Stress Corrosion Cracking, Fracture And Fatigue Analysis Of Weldments, Finite Element Analysis, Ergonomics, Human Factors Engineering, Logistics And Supply Chain Management, Occupational Health Safety And Environment, Surface Engineering, Thermal Spray Coating Technology, Laser Surface Texturing, Conventional / Advanced Machining Processes, Hybrid Manufacturing, Advanced Alloys & Composites, Additive Manufacturing, Nano-Finishing, Advance Machining Techniques, Forming/Material Modelling, Microwave Processing Of Materials, Additive Manufacturing Of Metals, Additive Manufacturing, Advanced Manufacturing, Reliability And Maintenance Engineering, Supply Chain Management, Welding Engineering, Tribology, Planning, Scheduling And Optimization Of Manufacturing Systems, Non-Conventional Manufacturing Processes, Additive Manufacturing, Metal cutting operations, Lubrication Techniques, Sustainability Assessment And Sustainable Manufacturing
10	Mechanical Engineering ome@nitj.ac.in	Composite Materials, Solar Energy, Heat transfer, Machine Design, Molecular Dynamics
11	Textile Technology otx@nitj.ac.in	Fabric Manufactures, Medical Textiles, Fabric Structure, Structural Analysis, Comfort, Technical Textiles, Staple Fibre Spinning, Chemical Processing of Textiles, Waster Water Management in Textiles, Enzymatic Processing of Textiles, Colouration and Finishing of Textiles Property Relationship, 3D Weaving, Textile Reinforced Composites Apparel Characterization, Yarn Manufacturing, Textile Wet Processing, Biotech Applications in Textiles
12	Humanities & Management ohm@nitj.ac.in	Management Area: General Management, Marketing Management, Human Resource Management, Entrepreneurship Development and Management Service quality, Financial Intermediation and Fintech, Stock Market and Portfolio Management, Corporate Governance, Investor Behaviour, Entrepreneurship, Green Marketing, Rural Marketing, Marketing Management, Consumer Behaviour, Branding, Sustainable Behaviour and Entrepreneurship Development Humanities Area: Linguistics and Language Teaching, English Language and Literature, Regional Literatures in English, Multilingualism, Diaspora Studies, Communication, Feminism, American Literature, Indian Fiction, Translation Studies, Film Studies, Literary Theory and Criticism - Psychoanalysis, Discourse Analysis, Queer Theory, Schizoanalysis of Literature, English Literature and Language- Gender Studies: Feminism, Queer Studies, Transgender Studies; Diaspora Studies; Postcolonial Theory; Comparative Literature.
13	Physics oph@nitj.ac.in	Laser Plasma Interactions, Theoretical Nuclear Physics, Radiation Physics, Experimental Nuclear Physics, Theoretical High Energy Physics, Condensed Matter Physics (Experimental), Liquid Crystals (Experimental), Condensed Matter Physics (Experimental), Theoretical High Energy Physics, Theoretical Condensed Matter Physics, High Energy Physics, Experimental Condensed Matter Physics, Quantum Thermodynamics
14	Chemistry ocy@nitj.ac.in	Nano Environmental Chemistry, Smart Polymers and Materials, Nano and Green Composites, Carbon based Nanocomposites and Surface Chemistry, Environmental Chemistry, Superabsorbents / Hydrogels: Synthesis of Superabsorbents / Hydrogels using Green Technology and their applications, Biodegradable Green Composites, Synthetic Organic Chemistry, Solution Thermodynamics, Organic Synthesis, Advance Nanomaterials for Catalysis, Sensors, Ionic liquids, Micellization behavior of surfactants and their applications in material chemistry, Physicochemical studies on biopolymer model compounds and proteins, Thermodynamic investigations of pure compounds and mixtures, Solution thermodynamics of binary liquid mixtures, Coordination Chemistry, Bioinorganic Chemistry, Computational Chemistry, X-Ray Crystallography of small and large molecules,

		Environmental nanotechnology, Green synthesis, Inorganic Chemistry with an emphasis on multifunctional porous materials for energy and catalysis applications and Nanomaterials for sensing & catalysis, Crystallography Supramolecular Chemistry, Optical Chemo-sensor Development, Smart Wettability Surfaces and their applications, Oil-water/Emulsion Separation, Ionic Liquids, Solution Chemistry, Bioorganic Chemistry
15	Centre for Energy and Environment occe@nitj.ac.in	New and Renewable Energy, Solar Energy, Bio Energy, Biofuels, Hybrid Systems, Fuel Cells, Climate Change, Environmental and Allied areas of Renewable Energy

B) Minimum Academic Qualifications for Admission

1) Ph.D. (Part Time)

- **Engineering Departments (Sr. No. 1 to 11 & Sr. No. 15): Engineering Departments: General (For all Departments):** Master's Degree in Engineering/Technology in the relevant area of research along with Bachelor's Degree in appropriate branch of Engineering/Technology with a first class or minimum 60% marks (or CGPA of 6.5 on 10 point scale) in the qualifying examination.

For all Engineering Departments (Sr. No. 1 to 11 & Sr. No.15), direct Ph.D. admission is also available in case of candidate with B Tech/B.E./BS (4 year) with a CGPA of 8.0 and above on a 10-point scale or 75% aggregate from a Centrally Funded Technical Institute (CFTI). All such candidates must be GATE qualified. Number of credit courses to be cleared will be 24 credits before comprehensive examination.

Engineering Department Specific Qualifications:

Department of Biotechnology: "The Candidate should be B.E./B.Tech and/or M.E./M.Tech in the relevant branches of Engineering/Technology out of which either B.E./B.Tech. or M.E./M.Tech should be in Biotechnology. The candidates with M.Sc. in Biotechnology/Industrial Biotechnology/ Environment Biotechnology/ Biochemical Engineering/ Biochemical Technology/ Biomedical Technology/ Biochemistry/ Microbiology/ Bioinformatics with GATE/NET in Biotechnology are also eligible.

Department of Chemical Engineering: The qualification for admission to Ph.D. programme in the Department is Master Degree in Chemical Engineering or its allied branches. The candidate with Master degree in Science without GATE/NET can join in Ph.D. (Part Time) Programme.

Department of Instrumentation and Control Engineering: The candidate should have Master's degree in Science in related fields but more preference will be given to Master's Degree in Science with Engineering (Ex. M.Sc Engg.). Interdisciplinary department candidates will also be allowed (Ex. CSE, Mechanical Engg./Chemical Engg. Etc.).

Department of Textile Technology: The qualification for admission to Ph.D. programme is M. Tech. in any discipline whereas B.Tech. should be in Textile Technology/Engineering.

Centre for Energy and Environment: M.Tech. in Renewable Energy, Chemical Engineering, Electrical Engineering, Material Science, etc. alongwith B.Tech. or Master Degree in Environmental Science/Technology or M.Sc. in Physics, Chemistry with a first class of minimum 60% marks (or CGPA of 6.5 on 10 point scale in the qualifying examination)

- **Other than Engineering Departments (Sr. No. 12 to 14):**

Science Departments (Physics & Chemistry): Master's Degree in appropriate branch of Science with a first class or minimum

60% Marks (or CGPA of 6.5 on 10 point scale) in the qualifying examination.

Humanities & Management:

Humanities:

Ph.D. (English Literature): Master's degree In English or English Language Teaching with at least 55% marks or a CGPA of 6.0 on 10 point scale.

Ph.D. (Linguistics): Master's degree in Linguistics or English or English Language Teaching with at least 55% marks or a CGPA of 6.0 on 10 point scale.

Management:

Ph.D. (Management): Master's degree in Management or Commerce with at least 60% marks or a CGPA of 6.5 on 10 point scale.

Note 1: Only primary mode of evaluation (CGPA or percentage) as mentioned in the qualifying degree certificate/mark sheet will be considered while verifying eligibility. Conversion from CGPA to percentage or vice versa given by individual Institute/University will not be allowed

Note 2: For the SC / ST / PwD applicants, the eligibility requirement of marks be relaxed by 5%, or by a CGPA of 0.5 (on a 10-point scale) at both the Bachelor's and Master's level

- 1.1 The candidates who will be admitted in Engineering Departments either on the basis of M Tech in Interdisciplinary Programmes or on the basis of Master's Degree in Science or on the basis of Direct Admission under B Tech/B.E./BS (4 year) shall be required to clear 24 credit courses before Comprehensive Examination.
- 1.2 Candidates with GATE/NET (JRF/LS)/ UGC (JRF/LS) as a Part-Time candidate need not clear Institute written examination. However, GATE/NET (JRF/LS)/ UGC (JRF/LS) / Inspire Fellow/ Sponsorship from outside agency or Institute Examinations are only for shortlisting of the applicants. Mere shortlisting of an applicant does not confirm admission to Ph.D. Programme. The admission shall be solely based upon the performance of individuals during "presentation and interaction" and availability of the Supervisor in the proposed area of research.
- 1.3 All other candidates without NET/GATE shall be required to clear the Institute written examination i.e. **the screening test** for the purpose of short-listing for "Presentation & Interaction".
- 1.4 For a foreign national candidate who applies through Ministry of Human Resource Development, Govt. of India, or Indian Council of Cultural Relations, Govt. of India, are eligible to apply provided that they possess the same minimum qualifications as required for Ph.D. admission in case of Regular candidates.

C) Seats:

Seats are available for the Ph.D. (Part Time) programmes in all the above-mentioned Departments as mentioned in **A**. The number of seats depends upon the number of available research guides in the Institute, vacancies available with the guide and research infrastructure in the concerned Department. The admission of candidates to Ph.D. programme depends on the expertise available in a Department and the willingness of the candidate to work in the corresponding research areas.

D) Admission Procedure

- i. Candidates with GATE/NET (JRF/LS)/ UGC (JRF/LS) need not clear Institute written examination. For all other candidates, Institute written examination is to be cleared. However, GATE/NET (JRF/LS)/ UGC (JRF/LS) / Inspire Fellow/ Sponsorship from outside agency or Institute Examinations are only for shortlisting of the applicants. Mere shortlisting of an applicant does not confirm admission to Ph.D. Programme. The admission shall be solely based upon the performance of individuals during "presentation and interaction" and availability of the Supervisor in the proposed area of research.
- ii. The admission to Ph.D. (Part Time) programme in all disciplines mentioned in this advertisement shall be made purely on the basis of a "presentation" to be made by the shortlisted applicants in their proposed area of research followed by "interaction" to be conducted by the respective Department Admission Committee. Mere shortlisting of an applicant does not confirm admission to Ph.D. Programme.
- iii. Shortlisting of candidates (other than GATE/NET (JRF/LS)/ UGC (JRF/LS)) shall be done by Departmental Admission Committee for the process of "presentation and interaction" for the applicants. For this purpose, a screening test shall be conducted by the respective Departments. Only those applicants who score marks above the cutoff of 40%, i.e. 24 marks out of 60 for General category candidates, and 35% i.e. 21 out of 60 for SC/ST/OBC/EWS/PWD candidates in the screening test shall be eligible for presentation and interaction process. Marks obtained in the screening test shall not be counted for preparation of final merit list of the successful candidates. The details of the Syllabi will be separately notified on the Institute website i.e. www.nitj.ac.in
- iv. The Pattern of Examination shall be as of GATE and NET examination. The Screening Test will be of MCQ Mode.
- v. The Department Admission Committee for each Department shall recommend the suitable candidates for admission based on its assessment of presentation and interaction. Marks obtained in the screening test shall not be counted for preparation of final merit list of the successful candidates.

- vi. The Interview and Presentation by the GATE/NET-JRF qualified and NON-GATE/NET-JRF (written test qualified) candidates will be held on the same date.
- vii. Merely shortlisting of an applicant does not confirm admission to Ph.D. programme. The admission shall be solely based upon performance of individuals during “presentation and interaction” and availability of the Supervisor in the proposed area of research. The Department Admission Committee/Institute reserves the right not to recommend any candidate for admission to Ph.D. in the respective Department if the performance of the shortlisted candidates is not found satisfactory during “presentation and interaction”. The decision of Department Admission Committee (approved by the competent authority of the Institute) shall be final.
- viii. The merit list of the selected candidates (based on presentation & interaction) shall be prepared on marks basis. A candidate who scores less than 40 marks (out of 100) for “presentation & interaction” shall not be considered “qualified” for admission to Ph.D. programme and his/her name shall not be recommended for admission by Departmental Admission Committee.

E) Other Issues

- i. An applicant is required to apply on different application forms in case he/she wants his/her candidature to be considered in more than one Department.
- ii. The candidate should ensure that they possess all the required qualification & eligibility as per this Advertisement by the last date of submission of the application forms.
- iii. Category (General/EWS/OBC/SC/ST/PWD) once chosen by the applicant in his/her application form shall not be changed at a later stage.
- iv. OBC/EWS Certificate must have been issued on or **after 1st April 2021** so that the candidates from creamy layer are identified. No certificate issued before this date shall be acceptable.
- v. Certificate Checking: The certificates (in original) of all the candidates recommended for admission shall be checked by the individual Department before deposition of fee by the candidates.
- vi. The application without proof of application fee as applicable/self-attested copies of documents/certificates/testimonials shall be rejected and shall not be considered for shortlisting.
- vii. Keeping in view the present COVID-19 pandemic situation and maintaining of social distancing, the Course Work of the admitted candidates shall be conducted through ONLINE lectures and through NPTEL/SWAYAM platform. The same will be reviewed depending upon the instructions of the Government for opening of the Institute.

F) No stipend shall be paid to any PhD (Part Time) candidates by the Institute.

G) Important Dates

Sr. No.	Activity	Date
1.	Last date for submission of Applications	08.08.2021 by 5.00 PM
2.	Display of list of eligible candidates by the concerned HOD in the Institute website	12.08.2021
3.	Written Test (if required, in the respective Department. Reporting time 9:00 AM)	16.08.2021
4.	Display of list of candidates eligible for presentation & interaction	16.08.2021 by 4.00 PM in the respective Departments
5.	Presentation/interaction by the candidates who have qualified the test	17.08.2021
6.	Display of list of selected candidates	18.08.2021
7.	Deposition of fee & Registration	18.08.2021 -20.08.2021
8.	Commencement of classes	To be notified on the Institute Website

Note: All the dates mentioned above are tentative subject to change at any stage by the competent authority. All the candidates interested in seeking admission are requested to visit the Institute website regularly for updates.

H) All disputes pertaining to the admissions shall fall within the jurisdiction of Jalandhar only.

- I) All admissions will be provisional till these are confirmed subject to medical fitness, payment of all the fees, fulfillment of eligibility conditions, and verifications of certificates by the Academic Section of the Institute.
- J) The Institute reserves the right to modify/defer or cancel this Advertisement at any stage of proceeding without assigning any reason.
- K) All the admitted students shall be required to abide by the Institute Ph.D. regulations and instructions issued by the Institute time to time.

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