VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY
NAGPUR

Information Brochure

Ph.D. Admission

(Full-Time/ Part-Time)

July 2026

*Ph.D. Admission Cycle-I Notification: 16th March 2026

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Visvesvaraya National Institute of Technology (VNIT), Nagpur, an Institute of National Importance established by an Act of Parliament, offers a focused environment for advanced research. With emphasis on interdisciplinary collaboration, modern infrastructure, and strong linkages with industry and academia, the Institute invites applications for its Doctoral Programmes for the academic year 2025–2026. Scholars are encouraged to pursue research aligned with national priorities and global challenges.

Applications are invited for the admission to the Ph.D. Programme [Full-Time/Part-Time] for the following Engineering departments/ Centers/ Interdisciplinary groups, Science, Architecture, Humanities and Social Sciences.

The Ph.D. program is available as both full-time and part-time, including direct Ph.D. entry for B.Tech. graduates in all admission categories as given below.

Candidates whose result is awaited, can also apply for Ph.D. program. They will have to submit the final result to Academic Section, till that time their registration will be provisional.

List of the Departments/Centers

1. Applied Mechanics
2. Chemical Engineering
3. Civil Engineering
4. Computer Science and Engineering
5. Electrical Engineering
6. Electronics and Communication Engineering
7. Mechanical Engineering
8. Metallurgical and Materials Engineering
9. Mining Engineering
10. Centre for VLSI & Nanotechnology
11. Architecture & Planning
12. Physics
13. Chemistry
14. Mathematics
15. Humanities and Social Sciences
16. Interdisciplinary Board (Biomedical Engineering)

1. Ph.D. PROGRAMS OFFERED BY THE INSTITUTE

Ph.D.	Assistantship/ Fellowship	Admission Category	Remarks
Full-Time (Category 1)	Institute (MoE, GOI)	Cat. 1A	The assistantship (as per norms) is only for GATE/NET qualified candidates.
	Sponsored Project	Cat. 1B	The financial support under this category is provided from sponsored/funded projects approved by the sponsoring agency.
	External Fellowship	Cat. 1C	The financial support is provided by various Govt. agency such as UGC/ DST/ DBT/ ICMR/ CSIR/DAE etc., if any. The financial support and duration for fellowship will be as specified by the agency and VNIT. A valid research fellowship award letter from such agencies is required (mandatory) for this category.
	Sponsored	Cat. 1D	The students admitted under this category are not eligible for any financial assistance from VNIT and are sponsored fully by themselves (Self-sponsored) OR by their employers. GATE is not mandatory for this category. Candidates are expected to be released for fulltime coursework and research at the Institute for a minimum period of three years. A no-objection certificate (NOC) as per Annexure I is required (mandatory) for this category, in case of sponsored by any organization.
Part-Time (Category 2)	No Assistantship from VNIT Nagpur	Cat. 2A	The students admitted under the Part-Time Category are not eligible for financial assistance from VNIT. However, the students having a qualifying score in a national-level examination (GATE/NET) may convert their part-time Ph.D. to a full-time program within the first two years, subject to VNIT norms. A no-objection certificate (NOC) from the current employer (as per Annexure II) is required (mandatory) for admission in this category. Also, NOC is required as and when the PhD candidate convert his/her category from part time to full time in the event of qualifying national level examinations
Note: Visvesvaraya PhD scheme seats, if available, may be filled under Cat. 1A (Eligibility & Assistantship as per Visvesvaraya PhD scheme).			

MARKS/CGPA REQUIREMENTS

Category	Minimum Qualification
GEN (Open)	6.5 CGPA (on the scale of 1-10) or 60 % at either UG or PG
OBC (NC)	6.0 CGPA (on the scale of 1-10) or 55 % at either UG or PG
SC, ST	5.5 CGPA (on the scale of 1-10) or 50 % at either UG or PG

2. INFORMATION ON DEPARTMENTS, CENTRES, AND INTERDISCIPLINARY GROUPS

Applied Mechanics **Discipline: (Structural Engineering)**	**ELIGIBILITY FOR ADMISSION** **A)** B.E. / B. Tech./ AMIE **in Civil Engineering, and** **B)** ME / M.Tech in Structural Engineering/Structural Dynamics and Earthquake Engineering / Structural Engineering related specialization/ Civil Engineering / Excavation Engineering, Mining Engineering, Rock Mechanics / Geotechnical Engineering / Material Engineering/ Construction Management/ Urban Planning/ Transportation Engineering / Forensic Structural Engineering / AI-ML in Structural Engineering / Civionics. **Eligibility for Interdisciplinary candidates:** **A)** B. E. / B. Tech. / AMIE in **Any branch of Engineering and** **B)** M. E. / M. Tech. in **Any branch of Engineering.**
	CORE RESEARCH AREAS Steel Structures, Concrete Structures, Precast structures, Prestressed steel and Concrete Structures, Composite structures, Earthquake Engineering, Finite Element Analysis, Nonlinear Analysis, Performance based Design, Structural Response Control, High Strength Concrete, Ultra High Performance Concrete, Self-Compacting Concrete, Durability and Concrete Corrosion, Special Structures (i.e. Bridges, Water Tanks, Steel Tower etc.), Structural Reliability, Blast Resistant Design of Structure, High Strain Rate Behavior of Materials, Crashworthiness, Seismic Vulnerability and Risk Assessment, Random Vibration, Structural Health Monitoring, Structural Rehabilitation, Forensic Structural Engineering, Artificial Intelligence and Machine Learning, Wind Engineering, Computational Fluid Dynamics (CFD), Hybrid Simulation, Structural Fire Engineering. Soil-Structure Interaction, Multi Hazard Analysis of Structures, Underground Structures
	INTERDISCIPLINARY RESEARCH AREAS New Materials, Smart Materials, Composite Materials, Functionally Graded Materials, Digital Twin, Civionics.
Chemical Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B. Tech. /B. E. students in any disciplines. **B)** M. Tech. /M. E. students in any disciplines. **C)** M.Sc. Tech. /M.Sc. students in any disciplines. **Eligibility for Interdisciplinary candidates:** **A)** B. Tech. /B. E. students in any disciplines. **B)** M. Tech. /M. E. students in any disciplines. **C)** M.Sc. Tech. /M.Sc. students in any disciplines. **D)** M. A. (Archaeology, Mathematics, Physics, Geology, Economics, Social science, and relevant subjects).
	CORE RESEARCH AREAS Advanced Materials, Advanced Separation, Adsorption, Agricultural Engineering, Battery Technology, Biochemical Engineering, Biomedical Engineering, Biotechnology, Bioenergy, Bio-pesticides and Fertilizers, Catalysis, Colloids, Drug

	Delivery, Environmental Engineering, Green Engineering and Technology, Interfacial Science, Membrane Bioreactor, Membrane Separation, Molecular Dynamics Simulations, Nanoscience and Nanotechnology, Physical Separation, Polymer Science and Engineering, Process Control, Process Intensification, Process Modeling and Simulation, Waste-to-Energy, Water Treatment, and other research areas of mutual interest between the supervisor and the scholar
	INTERDISCIPLINARY RESEARCH AREAS Advanced Materials, Advanced Separation, Adsorption, Agricultural Engineering, Battery Technology, Biochemical Engineering, Biomedical Engineering, Biotechnology, Bioenergy, Bio-pesticides and Fertilizers, Catalysis, Colloids, Drug Delivery, Environmental Engineering, Green Engineering and Technology, Interfacial Science, Membrane Bioreactor, Membrane Separation, Molecular Dynamics Simulations, Nanoscience and Nanotechnology, Physical Separation, Polymer Science and Engineering, Process Control, Process Intensification, Process Modeling and Simulation, Waste-to-Energy, Water Treatment, Archaeological study, Indian knowledge system (Ancient scripts, Manuscripts, Archeology, Science and Technology) and other research areas of mutual interest between the supervisor and the scholar
Civil Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E. / B.Tech / AMIE in Civil Engg. BE/ B.Tech (Environmental Engineering) as a qualifying U.G. Degree in addition to BE/B Tech in Civil Eng,. **B)** M.E./ M.Tech in any branch of Civil Engineering/Excavation Engineering/Mining Engineering/ Applied Geology/ Urban Planning/Urban Resource Planning/ Master's in Planning(M Plan). M.E./M.Tech in (Energy & Environment/ Environmental Science & Engineering/Industrial Pollution control/Environmental Science & Technology/Environmental Management/Wastewater Management Health and Safety/Sanitation Science, Technology & Management/Waste Management) or equivalent as qualifying P.G. degree. M.E./ M.Tech in (Agricultural Engineering/ Soil & Water Conservation Engg/ Water resources management/Water management/ Offshore Engg/Naval Engg/Marine Engg/Ocean Engg) or equivalent as qualifying P.G. degree. **Eligibility for Interdisciplinary candidates:** **A)** Bachelor's degree in any branch of Engineering, Architecture, or Planning **B)** ME/M.Tech in any branch of engineering/ Master of Planning (M.Plan)/ Master of Architecture (M.Arch) / Master of Design (M.Des)/ M.Sc. (Geology or its equivalent) and M.Sc. (Agricultural Science or its equivalent)
	CORE RESEARCH AREAS Water Distribution Systems, Environmental Management, Water and Waste Water Treatment, Solid and Hazardous Waste, Traffic Engg, Pavement Design, Highway Construction Materials, Durability of concrete, High Performance Concrete, Self-Compacting Concrete, Bond Strength of Concrete with Reinforcement, Building Construction & Technology

	Water Resources Engineering, Green Building, Construction Management, Remote Sensing & GIS Applications, Geotechnical Engineering, Characterization of geo-materials & Ground Improvement, Rock Engineering & Underground structures, Soil Dynamics & Geotechnical Earthquake Engineering, Application of Geosynthetics, Physical & Numerical modelling of Geotechnical systems, Mining Geotechnics & Pavement Geotechnics, Geo-environmental Engineering, Rock Mechanics, Transportation Geotechnics
	INTERDISCIPLINARY RESEARCH AREAS Image and Video Processing, Data Science, Artificial Intelligence, Machine learning, Internet of Things, Human behavior & psychology in transportation, Urban transport planning, and public transport planning, Fracture Mechanism in Pavement Engineering, Energy Harvesting, Pavement Systems, Project Management, Built Environment, Building Information Modeling, Public Private Partnership, Impact of urbanization on infrastructure, Construction Management, Project Engineering & Management, Quantity Surveying, Occupational Health Safety &; Environment and Contracts Management, Water resources management, Fly ash management and fly ash technology development in an interdisciplinary section, Project management & Organizational issues, Energy, Environment & Climate Resilience.
Computer Science and Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E./B. Tech./AMIE or equivalent in one of the following branches: **B)** M.E./M. Tech or equivalent in one of the following branches: Computer Science/Computer Technology/Computer Engineering/Information Technology/Information Science and allied Computer Science branches Electronics/ Electronics and Communication /Electronics and Telecommunication/ Electronics and Instrumentation/ Microelectronics/ Nanoelectronics/ VLSI and Embedded Systems/ Digital Electronics and allied Electronics branch
	CORE RESEARCH AREAS Parallel & Distributed Computing, Data Mining & Warehousing, Pattern Recognition, Security, Artificial Intelligence, Soft Computing, Mobile Computing, Knowledge Management, IT and IT enables services, Real Time systems, Image and Video processing, Data Science, Machine learning, Internet of Things, Cloud Computing, Information retrieval, Natural language processing, Spatial information extraction, Data analytics and Data Science, Wireless sensor networks, Biological systems modeling
Electrical Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E./B.Tech in Electrical Engineering or **Allied branches such as:** Electrical & Power, Electronics & Instrumentation, Power Engineering, Energy Systems, Control& Instrumentation, Instrumentation, Electric Vehicles, Electronics and communication or Engineering Degree in any other discipline with minor degree in the Electrical Engineering. **B)** M.E/M.Tech in Electrical Engineering or **Allied Specializations Such as** Power Electronics, Control systems, Power Systems, Power Electronics & Drives, Electrical Machines, Instrumentation, Condition Monitoring, Bio-medical Instrumentation &

	Control, Industrial Automation & Control, Automation, Process Control, Transportation Engineering, Non-linear Dynamics, Computer Science, Power Quality, Robotics, Signal Processing, Power & Control, Smart Grid, Electric Vehicles, Energy Systems, Artificial Intelligence and Machine Learning, Electronics and Communications, Embedded Systems, Mechanical Engineering with Thermal and Heat flow
	CORE RESEARCH AREAS Power Electronics and Drives, Power Electronics applications in Power System, Electrical Machines, design and condition monitoring, Power system and related areas, Control systems and its applications, Electric Vehicles and Charging Infrastructure, Renewable Energy Sources and Utilization, Micro-grid stability and analysis, Power Quality, Smart Grid, Energy Vectors and Management, Control system interface with system and Signal Processing, Artificial Intelligence & Machine Learning Application, Non-linear Dynamics and Chaos Theory, Switchgear and protection, IOT and Industry automation, Measurement and Instrumentation, Circuit and Electromagnetic Field Theory, Bio-medical Instrumentation and Control
Electronics and Communication Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E. / B. Tech. / AMIE / AMIETE / B.Sc. (Engineering.) of four years duration in one of the following branches: Electronics and allied branches, Computer Science and allied branches, Electrical and allied branches, Instrumentation and allied branches, Biomedical, IoT, Mechatronics, Robotics. B.E. / B.Tech. in any Engineering discipline. **B)** M.Tech. / M.E. / M.S. (at least two year program) in above branches. **Eligibility for Interdisciplinary candidates:** **A)** B.E. / B. Tech. /AMIE/AMIETE/B.Sc. (Engineering.) of four years duration in one of the following branches: Electronics and allied branches, Computer Science and allied branches, Electrical and allied branches, Instrumentation and allied branches, Biomedical, IoT, Mechatronics, Robotics. B.E. /B.Tech. in any Engineering discipline. **B)** M.Tech./ M.E./ M.S. (at least two-year program) in above branches.
	CORE RESEARCH AREAS Communication Engineering, Signal Processing, Image Processing, Video Processing, Computer Vision, Biomedical Signal and Image Processing and Analysis and its applications, Antennas / RF/ Microwave Engineering, Embedded Systems and Sensor networks, Artificial Intelligence Machine learning and its applications, Optical and Photonics, IoT Electronics & Instrumentation.
	INTERDISCIPLINARY RESEARCH AREAS Cyber-Physical systems, Earth Observation, Remote Sensing, Structural health monitoring, Smart Transportation Engineering, Avionics/ Civionics
Mechanical Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E/B.Tech. in Mechanical Engg. or equivalent.

	B) M.E/M. Tech. in Mechanical Engg. or Equivalent **Eligibility for Interdisciplinary candidates:** Same as above
	CORE RESEARCH AREAS Collaborative robots and nonlinear control, Machine vision, deep learning and artificial intelligence, Nonlinear dynamics, Fatigue and Fracture Mechanics, Vibration and Machine condition monitoring, Composite laminates and damage identification, Biomedical Engineering, Product design, Mechanism and parallel manipulators, Surface engineering, Friction and Tribology, Crashworthiness, ballistic and cellular structure, Nanomaterials, CNT reinforced composites and ceramics, Bio Tribology, Adhesion and rupture of soft solids, Renewable energy (Solar/Wind/Biomass), CFD, Compressible flow and Fluid dynamics, Combustion engineering, Supersonic and hypersonic engines, Multi phase flows, Fluid structure interaction, I.C Engines and Alternative fuels, Fuel Cell, Heat and Mass transfer, Nuclear power engineering and safety, CAD/CAM and additive manufacturing, Industrial engineering, Manufacturing system simulation, Maintenance and reliability engineering, Smart manufacturing and automation, Ergonomics and human factor **INTERDISCIPLINARY RESEARCH AREAS** Machine vision, deep learning and artificial intelligence, Biomedical Engineering, EV technology, Aerospace engineering, Mechatronics.
Metallurgical and Materials Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E. / B. Tech. in Metallurgical and Materials Engineering / Allied branches / Mechanical / Production / Industrial / Chemical. **B)** M.E. / M. Tech in Metallurgical and Materials Engineering/ Mechanical/ Production / Industrial / Chemical and M.Sc (Physics or Chemistry or Materials Science or Biotechnology or allied areas) **Eligibility for Interdisciplinary candidates:** B.E / B.Tech / M.E. / M. Tech in Mechanical/ Production / Industrial / Chemical and M.Sc (Physics or Chemistry or Materials Science or Biotechnology or allied areas) or equivalent.
	CORE RESEARCH AREAS Wear of Composite and Metallic Materials, Welding Metallurgy, Development of Polymer Blends and Composite Materials, Fatigue, Creep and Fracture Behavior of Materials, Corrosion Science and Engineering, Alloy Development, Nano-Bio Materials/ SMART Materials, Polymers Polymeric/Ceramics and Composite Materials, Processing of Materials, Waste Materials Utilization, Modelling and Simulations in Materials Engineering, Recrystallization in metals/ alloys, Texture and Micro-texture development in metals/alloys/ceramics, Crystal plasticity deformation simulations, Nanomaterials for functional applications
	INTERDISCIPLINARY RESEARCH AREAS Biomaterials, Nano-materials, waste management, recycling, bio-corrosion, polymer-composites, materials characterization.

Mining Engineering	**ELIGIBILITY FOR ADMISSION** **A)** B.E./ B.Tech in Mining/ Civil/ Construction/ Environment/ Mechanical/ Electrical/ Electronics/ Metallurgy/ Chemical/ Computer Science Engg. or Equivalent **B)** M.E/ M.Tech in Mining Engg. or related to Mining Engg./ Civil Engg./ Construction Engg./ Environment Engg./ Mechanical Engg./ Electrical Engg./ Electronics Engg./ Metallurgy Engg./ Chemical Engg./ Computer Science Engg./ Geo-Tech Engg/ Mine Planning/ Rock Mechanics/ Opencast Mining/Mineral Engg./ Earth Resource Engg./ Geomatics/Reliability Engg./ Safety Engg. And any other related branch. OR M.Sc./ M.Sc. Tech in Geology/ Applied Geology/ Environment.
	CORE RESEARCH AREAS Rock Engineering, Geomechanics, Slope Engineering & strata Control, Geo-environmental aspects, Dust and other Environmental Pollution, Design of Mine & excavations, Tunnel, Caverns, Underground storage, subsurface urban facilities, Blasting and Rock Fragmentation, Applicability of System Engineering and Safety Engineering, Reliability and Productivity Analysis of excavation equipment, Numerical Modeling for Rock Mechanics Applications, Mine waste management, IOT, AI/ML application in Mining & Excavation, Green Mining/ Clean Coal Technology
VLSI & Nanotechnology	**ELIGIBILITY FOR ADMISSION** **A)** B.E/B.Tech in Electronics Engg.or equivalent. **B)** M.E./ M. Tech in one of the following branches: Microelectronics, Nanoelectronics, VLSI and embedded system, VLSI design, VLSI systems, Optoelectronics/Photonics, digital Electronics, Microelectronics and VLSI design, VLSI and Embedded systems related branches, Microelectronics/ Nanoelectronics related branches
	CORE RESEARCH AREAS Embedded Systems, VLSI Systems, Sensors and Systems, MEMS/NEMS, Semiconductor Devices and Modelling for applications in Quantum, RF, High Power, Micro and Nanoelectronics, Real time Image/Signal Processing, Optoelectronics / Photonics, Quantum Computing
Architecture and Planning	**ELIGIBILITY FOR ADMISSION** B.Arch./ BE (Civil)/ B.Tech.(Civil)/ B.Plan./ B.Tech. (Plan) or equivalent with M.C.P./ M. Arch./ M.Des./ M.Tech. (Urban Planning)/ M. Plan./ M.U.R.P./ ME (T&C.P) / other masters in relevant field.
	CORE RESEARCH AREAS **Architecture:** Architecture and Urban Conservation, Building Acoustics, Building Illumination, Building Materials, Built Environment and Human Behavior, Energy Efficient Architecture, Housing, Pedagogy in Architecture, Sustainable Architecture, Universal Design, Vernacular Architecture

	Planning: Climate and Disaster Risk resilience, Complex Systems approach for Urban Studies, Environmental Planning, Project Management, Real Estate and Development, Regional Planning, Remote Sensing and GIS applications, Rural Area Planning and development, Urban Design, Urban Form and Climate Studies, Urban Heat Island Studies, Urban Housing, Urban Infrastructure, Urban Planning and development, Urban Soundscape, Urban Sustainability, Urban Transportation
Physics	**ELIGIBILITY FOR ADMISSION** Master's Degree in the concerned or an allied subject.
	CORE RESEARCH AREAS Solid Electrolytes, Functional Ceramics, Nanomaterials /Biomaterials, Polymers Polymeric/ Ceramics & Composite Materials, Solar Cells, Sensors, Supercapacitors, Quantum dots, Magnetic Nanoparticles, Solid Oxide Fuel Cells, Thin films, Heterojunctions, Advanced Materials/SMART Materials, Simulation and Modeling, computational condensed matter physics, density functional theory based computations of novel quantum materials, Theoretical and mathematical Physics, Quantum Theory, Quantum information Theory, Quantum Computing, Foundations of Quantum Mechanics, Quantum Machine Learning, Many- Body Condensed Matter Theory, Numerical Linear Algebra, Photocatalysis, Photoluminescence, Ferroelectric & Dielectric materials, Quantum dots Containing Glasses, Air Purification, Theory of random matrices and Complex systems, Chaos and integrability in classical and quantum systems, Topological Materials, Collective Excitations
Chemistry	**ELIGIBILITY FOR ADMISSION** M.Sc./M.Tech. or equivalent degree in Chemistry or an allied discipline, Biochemistry, Environmental Science, Biotechnology, Medical Biotechnology, Microbiology, Pharmacy, Forensic Science, Nanoscience, Polymer Technology/ Science, Electronics, Biophotonics, Material Science, Food Technology/Science.
	CORE RESEARCH AREAS Polymer Chemistry, Functional Materials, Nanomaterials, Catalysis, Photocatalysis, Green Chemistry, Water splitting and Nitrogen fixation, Hydrodeoxygenation (HDO) of bio-oil, pyrolysis of lignin, Waste Biomass, Sustainable packaging, Molecular Imprinting, Solid Phase extraction & method development, Molecular Spectroscopy for Optoelectronic Materials (OLED) and Theragnostic Drug Development, Anticancer Drug Discovery, Photodynamic Therapy, Fluorescence Spectroscopy, Biophysical Chemistry, Photophysics and Photobiology, Recyclable Elastomeric Composites, Transition Metal Chemistry, Synthetic Inorganic Chemistry, Bioinorganic Catalysis, Electroanalytical chemistry, Electrochemical and impedimetric sensors. Organic synthesis, Heterocyclic chemistry, Synthetic methodologies, Asymmetric synthesis, Biocatalysis, Chemistry of Organic Photo Voltaics, Thermodynamics &Solution Chemistry, Crystal Engineering, Organic soft material, Supramolecular chemistry, Liquid crystals, Wastewater treatment, Cavitation, and Desulphurization of Transportation fuels

Mathematics	**ELIGIBILITY FOR ADMISSION** M.Sc./M.A./M.S. in Mathematics / Applied Mathematics.
	CORE RESEARCH AREAS Relativity & Cosmology, Numerical Analysis, Singular Perturbation Problems, Fluid Mechanics, Numerical Fluid Dynamics, Operator Theory, Functional Analysis, Spectral Element Methods for Partial Differential Equations, Fixed Point Theory : Nonlinear Analysis, Singular Boundary Value Problems, Approximation Theory, Commutative Algebra, Fractal Approximation, Lie Groups, Lie Algebra, Partial Differential Equations and Integro-Differential Equations, Query Theory: Stochastic Modeling, Operation Research, Optimization under uncertainty, Fractional order differential equations, Topology, Dynamical Systems and Ergodic Theory, Mathematical modeling in DEs, Theoretical seismology and solid mechanics, High Resolution Schemes for Conservation Laws, Numerical Approximation for Fractional Differential Equations
Humanities and Social Sciences	**ELIGIBILITY FOR ADMISSION** M.A. in English/ Sociology /Economics/ Sanskrit.
	CORE RESEARCH AREAS Sociology, English Language & Literature, Open-Economy Macroeconomics, Trade and Development, Public Finance and Policy, Psychology, Human Resource Management, Sanskrit
Interdisciplinary Board (Biomedical Engineering)	**ELIGIBILITY FOR ADMISSION** Biomedical: BE/B.Tech in any branch of engineering or equivalent, B.Arch, M.Sc in any discipline, ME/M.Tech in any branch of Engg, M.Arch/ M.B.A./equivalent OR MBBS/ BDS/ BAMS/ BHMS/ BVSC &AH.
	RESEARCH AREAS Tissue engineering, Bio Medical Engineering, Rural Health Monitoring Technology, Bio materials & implants, Image processing for cancer detection, AI applied to Health sciences, any other research area related to Health sciences.

3. SYLLABUS FOR WRITTEN EXAMINATION (DEPARTMENT-WISE)

The syllabus for the written examination for admission to Ph.D. program is given below.

Name of Department	Syllabus for Written Test
Applied Mechanics	1) Engineering Mechanics 2) Mechanics of solid 3) Structural Analysis 4) Design of Steel Structures 5) Design of Concrete Structures
Chemical Engineering	The evaluation test will include both objective and descriptive questions, encompassing the following subjects: **Syllabus for candidates from Chemical Engineering and related fields:** Basics of Heat and Mass Transfer, Reaction Engineering, Fluid Mechanics, Process Control, Thermodynamics, Environmental Engineering, and other relevant subjects. **Syllabus for candidates other than Chemical Engineering:** GATE/NET syllabus relevant to their respective fields.
Civil Engineering	**Part A: 30% Weightage** Objective type question paper for B.Tech level syllabus. **Part B: 70% Weightage (Any one group from the following)** 1. Environmental Engg a) Water Supply & Treatment b) Sewerage and Sewage Treatment c) Air pollution & Solid waste 2. Water Resources Engg. a) Irrigation Engineering b) Hydrology & Water Resources Engg. c) Fluid Mechanics 3. Transportation Engg. d) Traffic Engineering a) Geometric Design b) Transport Planning c) Pavement Design d) Pavement Materials 4. Construction Management & Concrete Engg. a) Concrete Structure & Concrete Technology b) Construction Management c) Building Technology 5. Geotechnical Engineering a) Soil Mechanics b) Foundation Engineering 6. Interdisciplinary: The written test syllabus for the Civil Engg. Department's interdisciplinary admission category is as follows: The syllabus will be the current year GATE syllabus of the department to which the candidate has applied.

Computer Science Engineering	1) Programming & Data Structures 2) System Programming/OS 3) Compiler 4) Theory of Computation 5) Analysis of Algorithm 6) Discrete Mathematics 7) Computer Organization 8) Database Management Systems 9) Computer Networks
Electrical Engineering	Evaluation test will be on the basis of: 1) Objective type question a) Electrical Machines b) Control Systems and Instrumentation c) Power Systems and Protections d) Power Electronics and Drives e) Circuit and Electromagnetic Field Theory f) Signals and Systems g) Microprocessor and Microcontrollers 2) Subjective type question (any two to be attempt) a) Electrical Machines b) Control Systems and Instrumentation c) Power Systems and Protections d) Power Electronics and Drives
Electronics & Communication Engineering	**Part A: 30% weightage** English, Mathematical aptitude, Fundamental of Electronics and communication Engineering. **Part B: 70% weightage in the following group:** **1) Communication** a) Signal and Systems b) Electromagnetic field c) Analog & Digital Communication d) RF & Microwave e) Antennas f) Optical Communication and Photonics **2) Signal and Image Processing** a) Signal and Systems b) Digital Signal Processing c) Image Processing d) Biomedical signal and image processing. e) Machine learning f) Computer Vision. **3) Embedded Systems, IoT and Devices** a) Signal and Systems b) Electronic Devices & Circuits c) Digital Circuits & Microprocessors d) Microcontrollers

	e) Embedded Systems f) Electronic measurements g) Control systems h) Mechatronics **4) Artificial Intelligence (AI) and Machine Learning (ML)** a) Python programming b) Neural networks c) Machine learning d) Computer Vision **5) Computing** a) Data structures b) Computer organization c) Algorithms d) Programming
VLSI & Nanotechnology	1) Electronics Devices & Circuits, Analog Circuits 2) Digital Circuits & Microprocessors 3) Electromagnetic field 4) Electronic measurements 5) Analog & Digital Communication 6) Digital Signal Processing 7) Computer Organization 8) UHF & Microwave 9) Linear Networks 10) Optoelectronic Devices
Mechanical Engineering	**Part A – 30% weightage** Common to all students (1. Design, 2. Thermal and, 3. Manufacturing &Industrial Engineering Groups) a) Engineering Mathematics b) Numerical methods and computer programming c) Measurement and Control d) Engineering materials and basic metallurgy **Part B – 70% weightage** Any one group from the following **1. Design Group** a) Solid mechanics and Machine Design b) Mechanism and Theory of Machine c) Vibration, CAD, FEM and Robotics **2. Thermal Group** a) Fluid Mechanics and Fluid Machines b) Thermodynamics and Heat Transfer c) IC engines, Refrigeration and Air conditioning d) Hydraulics and Pneumatics **3. Manufacturing and Industrial Engineering Group** a) Casting, Welding and Metal Forming b) Metal cutting Processes, Machines and cutting tool geometry c) Metrology and Quality control

	d) Automation in Production e) Reliability and maintenance engineering f) Operations Research **Note:** In case, any student attempts part B for more than one group, he/ she will be considered for the group (if found eligible) in which he/she scores maximum marks.
Metallurgical and Materials Engineering	1) Physical Metallurgy 2) Extractive Metallurgy 3) Foundry Technology 4) Mechanical Processing 5) Testing of Materials 6) Polymeric and Ceramic Materials 7) Composites 8) Advanced Materials 9) Characterization of Materials
Mining Engineering	1) Application of Mathematics and Science 2) Basic of Mining Engineering 3) Basic of related branch/area
Architecture & Planning	1) Architecture, Art & Design 2) Building Sciences & Technology 3) Issues in relation to built environment like sustainable development, behavioral aspects, cultural issues etc. 4) Historical aspects of built environment 5) Issues related to urban areas like Housing, Urban Design, Conservation, Planning, Infrastructure, Transportation etc. 6) Types of Research and Research process. 7) Landscape Design 8) Environment and Disaster risk reduction
Physics	Syllabus as that for NET in Physics
Chemistry	As per the Syllabus of GATE (Chemistry) & NET (Chemical Sciences)
Mathematics	1) Linear Algebra, 2) Real Analysis, 3) Complex Analysis, 4) Ordinary Differential Equations, 5) Partial Differential Equations, 6) Integral Transforms, 7) Numerical Analysis, 8) Probability & Statistics 9) Algebra
Humanities and Social Sciences	1) English - Syllabus as that for NET in English 2) Sociology- Syllabus as that for NET in Sociology 3) Economics -Syllabus as that for NET in Economics 4) Sanskrit -Syllabus as that for NET in Sanskrit.

Interdisciplinary Board (Biomedical Engineering)	Biomedical Engineering 1) General Anatomy, Cell Structure and Function, Cell Physiology, Neuromuscular System, Reproductive System, Respiratory System, Cardiovascular System, Musculo skeletal system, Bacteria, Viruses and other Pathogens, Pharmacology 2) Biomaterials, Basic Metallurgy, Alloys used as implant, heat treatments and its application 3) Database Management systems, control systems. 4) Stress, strain, Bending Moment, torques, deflection, Elastic and plastic deformation, Failure theories 5) Different types of sensors: Accelerometer, Temperature, Physiological sensors, Biological sensors, wearable sensors, Non-invasive, invasive Measurements 6) Fluid mechanics, basics of heat and mass transfer, Bernoulli's equation, pressure and flow measurement 7) Signal Processing and power systems. Physiological Health Monitoring Technologies, instrumentations 8) Environmental issues and health hazards

4. PROCEDURE FOR SUBMITTING THE APPLICATION FORM

4.1 Application Fee

Applicants are required to pay a non-refundable application fee of Rs. 500/- per application form via VNIT's online payment portal: https://pay.vnit.ac.in/home. After completing the payment, candidates are required to submit the details of Payment Reference Number in the Google Application Form and attach a printed copy of the payment receipt along with the form.

4.2 Application Procedure

Applications must be submitted exclusively through the designated Google Form.

- Candidates applying to multiple departments or categories must submit separate forms for each, with a corresponding Rs. 500/- fee per application.
- The Google Form link and related details are available on the official VNIT website: https://vnit.ac.in/section/academics/admission/ under "**Ph.D. Admission July 2026**"

After submission, candidates will receive a PDF copy of their completed application via email. The printed and signed application form must be sent along with self-attested photocopies of relevant certificates and documents, and the payment receipt via speed post or hand delivery before the specified deadline to

The Deputy Registrar (Academic),
Academic Section,
VNIT, South Ambazari Road,
Nagpur – 440010 (M.S.)

Candidates should mention on the Envelope**: PhD (Cat. ___) - Name of Department.**
Incomplete application and/or applications received after the last date are liable to be rejected.

5. WRITTEN EXAMINATION & INTERVIEW

All candidates will be required to appear in the written examination, which will be conducted in the respective departments on the date specified in the information brochure. Further, the candidates shortlisted based on performance in the written test shall be interviewed as per schedule.

Top most scorer of the written test will be normalized to 100, and the marks of other candidates will be scaled accordingly. Then depending on the number of candidates to be called for the interview, the Department can set a cut-off normalized score. **However, normalized cut-off below 40% is not allowed**. No TA/DA will be provided.

The interview of the shortlisted candidates will be conducted in the concerned departments as per the schedule given in this brochure. The constitution of the interview committee will be as follows:

1. Head of the concerned Department - Chairman
2. Director Nominee
3. All faculty members from the concerned department/ discipline – Members

Qualified GATE/NET score (in past) is mandatory for the PhD admission category 1(A) and for other categories, the requirement of GATE/NET Score will be as per norms of sponsoring agencies. GATE/NET score, percentile GATE score as well as qualified mark should be stated. **The final list of the candidates will be prepared based on the following weightage of the written exam, interview and GATE/NET score for all categories of Full-Time and Part-Time Ph.D.**

5.1 Weightage for different parameters:

Weightage	Candidates having GATE/NET score (Full-Time/Part-Time)	Candidates NOT having GATE/NET score (Full-Time/Part-Time)
Written Examination	40 %	60 %
Interview	20 %	40 %
GATE/NET Score	40 %	NIL

5.2 Provisional list display: The provisional list of selected candidates will be displayed on Institute's website, and no separate intimation will be sent to the candidates. Selected candidates shall report to the Joint Registrar (Academic) for admission and payment of prescribed fees as per the schedule.

5.3 Reporting to the Department: Candidate shall report to the concerned department to get a Supervisor allotted. Candidate in consultation with the supervisor shall identify the area of research and prepare a synopsis. The supervisor will propose a **Research Progress Committee (RPC)** for Ph.D. program. The RPC shall monitor the progress of Ph.D. work of the candidate.

5.4 Course Selection: Supervisor and RPC shall recommend the courses to be undertaken by a candidate as per norms.

6. PAYMENT OF FEES AND DEPOSIT (Rs.):

(This is subject to the revision from time to time)

S.N.	Head	Ph.D. (Full-Time) Per Sem. (in ₹)	Ph.D. (Part-Time) Per Sem. (in ₹)
1.	Registration fees	4000.00	--
2.	Library Deposit (refundable)	2400.00	--
3.	Library Fees	1600.00	2000.00
4.	Tuition Fees	7500.00	15000.00
5.	Retention Fees	1600.00	5000.00
6.	Internet Charges	1000.00	1500.00
7.	Infrastructure Usage Fee	1000.00	1500.00
8.	*Medical Aid Fund Premium (for first 3 years) For subsequent per year	3000.00 1000.00	--
	# Total (₹)	**22100.00**	**25000.00**

At the time of joining, the candidate has to pay one-time fees and per semester fees together (i.e ₹ 22100/- for Ph.D. Full-Time and ₹ 25000/- for Ph.D. Part-Time.

* For subsequent years, scholars will have to pay Rs. 1000/- per year till thesis submission.

Examination Fee: The examination fee of **Rs. 35,000/- for Ph.D. Full-Time/ Part-Time** shall be paid by the candidate prior to the submission of the thesis.

NOTE:

1. The Full-Time Ph.D. Category fellows who have completed FIVE years, (excluding approved semester drop), but could not submit a thesis under the specified criteria (required for thesis submission) will be converted to Part Time Ph.D. Category automatically. The candidate will have to pay the fees as per the norms of the Part-Time program.
2. If the candidates could not submit the thesis even after completion of TWO years after conversion to Part Time Ph.D. category, they have to apply for re-registration with consent from supervisor's and RPC committee through proper channel. Re- registration process is to be done every year.
3. The Part-Time Ph.D. category fellows who have completed SEVEN years, but could not submit thesis under specified criteria (required for thesis submission) have to apply for re-registration with consent from supervisor's and RPC committee through proper channel. Re-registration process is to be done every year.
4. Re-registration fee is Rs. 25000/- (per year after completion of SEVEN years from the Date of Registration).

For: More information, please see Guidelines, Rules and Regulations Governing Ph.D. (Full-Time and Part-Time) Programs uploaded on VNIT website.

1. No teaching assistantship will be paid to sponsored candidates under this category.
2. Since it is a full-time program, the candidate is expected to be released for full-time coursework and research at the Institute for the complete duration of the Ph.D. program (Minimum 3 years from the date of registration).

CERTIFICATE FROM THE HEAD OF THE ORGANISATION
(On the letter-head of Industry / Organization / Institute)

Mr./Ms. _____ who is serving in our Industry/Organization/Institute from _____as (*designation*)_____ is hereby sponsored for Ph.D. program in **Cat. 1D: Sponsored (FULL-TIME)**, (*Department Name*) _____ Department of VNIT Nagpur.

In case of his/her selection, he/she will be relieved for the complete duration of the Ph.D. program (Minimum 3 years from the date of registration).

Date: _____

Signature and Stamp: _____

Name: _____

Designation: _____

Office Seal: _____

1. **Annexure II A is for the candidates who are applying for Ph.D (Part-Time) and Not Staying in Nagpur.**
2. No teaching assistantship will be paid to sponsored candidates under this category.
3. This is a Part-time program, but the candidate is expected to be released for a minimum of 6-12 months to complete coursework at VNIT Nagpur.

CERTIFICATE FROM THE HEAD OF THE ORGANISATION
(On the letter-head of Industry / Organization / Institute)

Mr./Ms. _____ who is serving in our Industry/Organization/Institute from _____as (*designation*)_____ is hereby sponsored for Ph.D. program in **Cat. 2A (PART-TIME)**, (*Department Name*) _____ Department of VNIT Nagpur.

In case of his/her selection, he/she will be relieved for minimum 06-12 months to stay at VNIT, Nagpur for the completion of course work at VNIT Nagpur as per the condition given in Guidelines, Rules and Regulations governing Ph.D. programs.

Date: _____

Signature and Stamp: _____

Name: _____

Designation: _____

Office Seal: _____

1. **Annexure II B is for the candidates who are staying in Nagpur and applying for Ph.D (Part-Time).**
2. No teaching assistantship will be paid to sponsored candidates under this category.
3. This is a Part-time program, but the candidate is expected to be released for the completion of course work at VNIT Nagpur.

CERTIFICATE FROM THE HEAD OF THE ORGANISATION
(On the letter-head of Industry / Organization / Institute)

Mr./Ms. _____ who is serving in our Industry/Organization/Institute from _____as (*designation*)_____ is hereby sponsored for Ph.D. program in **Cat. 2A (PART-TIME)**, (*Department Name*) _____ Department of VNIT Nagpur.

In case of his/her selection, he/she will be relieved for the completion of course work at VNIT Nagpur as per the condition given in Guidelines, Rules and Regulations governing Ph.D. programs.

Date: _____

Signature and Stamp: _____

Name: _____

Designation: _____

Office Seal: _____