Sardar Vallabhbhai National Institute of Technology, (SVNIT) Surat

INFORMATION BROCHURE

for admission to

Ph.D. Programme

Academic Year 2026-27 (Autumn semester)

(July 2026)

Quick Links

Institute website: www.svnit.ac.in

Apply online:
https://mis.svnit.ac.in/svphd/AdmissionInfo.aspx

SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY SURAT

www.svnit.ac.in

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A) General information

A.1) About the Institute

The Institute was established as Sardar Vallabhbhai Regional College of Engineering & Technology (SVRCET) Surat in 1961 as one of the Regional Engineering Colleges (RECs) to impart technical education. The Institute had begun with offering Bachelor Degree Programmes in Civil, Electrical and Mechanical Engineering. The Government of India declared the Sardar Vallabhbhai Regional College of Engineering & Technology (SVRCET) Surat to Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat with status of 'Deemed University' with effect from 4th December, 2002. With the enactment of National Institutes of Technology Act-2007, the Institute has been granted the status of 'Institution of National Importance' w.e.f. August 15, 2007.
The Institute now offers eleven (11) B.Tech. Degree Programmes, twenty-one (21) M.Tech. Degree Programmes, three (03) Five Years Integrated M.Sc. Degree Programmes in Chemistry, Mathematics & Physics, One (01) Five Years Integrated B.Tech and M.Tech Degree Programme and Master of Business Administration in Business Analytics. Institute offers Doctoral Degree Programme in Engineering, Science, Management and English. Institute also offers seven (07) M.Tech programme for working professionals and M. Tech (Research) in all the engineering disciplines.
The Institute has been recognized by the Government of India as one of the centres for the Quality Improvement Programme (QIP) for M.Tech. and Ph.D.
Institute has also established the Centre for Indian Knowledge Systems and Holistic Education and Centre for the Tribal Technology Development.

Institute Vision:
To be one of the leading Technical Institutes disseminating globally acceptable education, effective industrial training and relevant research output.

Institute Mission:
To be a globally accepted Centre of Excellence in technical education catalyzing absorption, innovation, diffusion and transfer of high technologies resulting in enhanced quality for all the stakeholders.

Institute Highlights

- Institute of National Importance, Govt. of India
- 240+ faculties with excellence in Academics & Research
- 200+ state of the art research laboratories
- 9500+ SCI/Scopus publications with 2,00,000+ citations
- 350+ Sponsored research projects
- 2500+ Consultancy projects
- 80+ National/ International MoU with Industries & Academia
- National/ International collaborations for various student exchange programs
- Institute fellowship to FIR scholars as per MoE guidelines
  (At present Rs. 37,000/- p.m. for first 02 years and Rs. 42,000/- p.m. after 02 years)
- Provision of fellowship through DST-Inspire, CSIR, etc. schemes
- Focus on Interdisciplinary research, start-up, patents

A.2) Admission schedule

Admission to Ph.D. programmes in different disciplines is performed twice in a year. Applications will be processed twice in a year, i.e. Autumn Semester (July) and Spring Semester (January). The schedule for interviews of applicants will be notified separately on institute website in the month of October/November and March/April every year.
The Ph.D. application portal link is https://mis.svnit.ac.in/svphd.
After the last date of application, scrutiny of all the received applications and supporting documents will be carried out by the respective departments as per the eligibility criteria. Department-wise list of eligible candidates called for written test/presentation will be published on the Institute website as per the schedule. All eligible candidates called for written test/presentation should appear in person, along with all the necessary original documents for physical verification as per the schedule. All candidates are advised to frequently check Institute website to stay updated.

A.3) Eligibility criteria and guidelines for admission

The eligibility criteria for admission to Ph.D. in Engineering Faculty, Science Faculty, Humanities and Social Science Faculty, Management Faculty and Interdisciplinary areas are:

1. A candidate shall possess Master's Degree in relevant area of research and should have passed with minimum 60% marks (CGPA 6.0) or equivalent in respective faculty for Open / Open_EWS / OBC_NCL candidates whereas 55% marks (CGPA 5.5) in the case of SC/ ST/ PwD candidates. Full time Institute Research scholars (FIR) taking admission in Ph.D Programs in Engineering, Sciences, English and Management should have qualified GATE/NET Examinations, at least once, in his/her academic career.
2. **Candidate also need to fulfill the eligibility criteria in terms of department-wise eligible preceding degrees and qualification in relevant GATE/NET exams for Ph.D. admission.** ***(Refer section B)***
3. **For the dual M.Tech+Ph.D program for existing postgraduate students of SVNIT:**
   If a student of full-time M. Tech. program from SVNIT wishes to pursue a Ph.D. programme of the Institute, he/she may be permitted to do so from the beginning of the second year provided:
   He/She should have obtained a CGPA of 7.0 or above after having registered for the full credits of course work in each of the first and second semesters of M. Tech. Program.
   (a) After completion of the M.Tech first year, the candidate can apply for M.Tech+Ph.D dual degree along with the regular Ph.D admission process of the odd semester. Joining for M.Tech+Ph.D dual degree is subjected to the recommendation of Ph.D interview committee.
   (b) During the third and fourth semester, the candidate should complete the necessary credits as per the academic requirements of the respective M.Tech program.
   (c) The M.Tech dissertation topic selected at the third semester should lead to subsequent Ph.D. research work.
   (d) If the candidate, continues for the Ph.D. work from fifth semester onwards, the necessary credits earned as per the academic requirements of the M.Tech. program during the third and fourth semester can be considered equivalent to the Ph.D course work and the candidate can directly register for first research progress seminar in his fifth semester.
   (e) If the candidate does not continue for Ph.D. work at the end of fourth semester or any other subsequent semester without fulfilling the requirements of doctoral

programme, he/she can be awarded with the respective M.Tech. degree and the Ph.D. candidature gets cancelled.

(f) During the third and fourth semester, the fee structure of M.Tech program will be applicable to the candidate and similarly the M.Tech stipend will only be applicable during this period. From the fifth semester onwards, the Ph.D fee structure and stipend will become applicable for such candidates.

(g) Such candidates will not be allowed to participate in the Institute placement activities, that is offered to the regular M.Tech students.

(h) After successful completion of all the Ph.D work as per the requirement of the doctoral program, the candidate will be given a dual M.Tech and Ph.D degrees. However, upon his/her specific request M.Tech. degree may be given at anytime after completion of the academic requirements of M.Tech. program.

4. For Direct B.Tech to Ph.D admission for meritorious undergraduate students:

Candidate who has qualified for the award of BE/B.Tech or equivalent degree, with good academic record in prescribed discipline, from an Institute of National Importance including Centrally funded technical institutions of repute / State Government funded institutes / Institutes affiliated to state universities / Any other private Institute or University within 200 NIRF ranking or 500 QS ranking, will also be considered for direct admission to Ph.D. Programme, subject to the following conditions:

(a) The candidate should have 7.0 CGPA on 10-point scale or 70 % in B.E./B.Tech. or equivalent degree. Such candidate should have obtained the degree within the previous five years, at the time of application.

(b) The candidate should have a valid GATE/NET or any National Eligibility Test as per the guidelines of MoE, in the prescribed discipline, if the candidate wish to avail the Ph.D fellowship.

(c) The candidate should earn 21 – 25 credits within the first TWO semesters of his/her program through course work as per the requirement of the regular doctoral program.

(d) If the candidate fails to earn the required credits within the time frame, the registration of the scholar will be cancelled from Ph.D. program. However, the candidate with valid reasons/ exceptional situation, may apply to the Director for an extension of one semester to complete the course work. The Director may consider such application on case-to-case basis.

(e) If the candidate leaves the doctoral program in between, there will be no consideration for award of any partial/equivalent degree or certificate.

5. For Direct B.Tech to Ph.D admission for industry/working professionals:

B.Tech to Ph.D admissions for industry/working professionals at PSUs, R&D organizations, well-equipped scientific institutions, laboratories, and reputed industrial organizations engaged in research-based activities are also considered subjected to the following conditions:

(a) Candidate who has qualified for the award of BE/B.Tech or equivalent degree, with good academic record in prescribed discipline, from an Institute of National Importance including Centrally funded technical institutions of repute / State Government funded institutes / Institutes affiliated to state universities / Any other private Institute or University within 200 NIRF ranking or 500 QS ranking.

(b) The candidate should have 6.0 CGPA on 10-point scale or 60% in his/her BE/B.Tech or equivalent degree, along with mandatory 05 years of work experience in the above-mentioned type of organizations.

(c) The candidate should earn 21 - 25 credits within the first TWO semesters of his/her program through coursework as per the requirement of the regular doctoral program.

However, If the candidate has the relevant experience of 15 Years, he/she has to earn 12 Credits as a course work.

(d) If the candidate wish to join the Ph.D program as a full time Institute Research (FIR) scholar, he/she must be qualified GATE/NET or any National Eligibility Test as per the guidelines of MoE, once at the time of admission. Such candidate will receive their stipend and contingency grants as per MoE guidelines.

(e) Candidates applying under ERS category must provide the experience certificate from the employer and no objection certificate as applicable/ prescribed.

(f) The final selection will be through the selection process as applicable to the regular candidates.

6. The final selection of the candidate for the doctoral programs under all categories will be strictly subjected to the performance of the candidate in the selection process.
7. The selection process consists of a written test/presentation/interview before the respective selection committees of the department.
8. The written test may be conducted at the discretion of the department for the initial screening of the candidates for allowing them to appear in presentation/interview. In the case of written test, the question paper format and topics for the test will be decided by the concerned department. The cut-off criteria in a written test will be at the discretion of the department.
9. The mode of selection process will be announced by the respective department at the time of publishing the list of candidates called for the selection process on the institute web site.

A.4) Application categories and financial support

There shall be provision of following categories of registration to the candidates willing to register for Ph.D Programmmes:

(a) **QIP Candidate:** Full time **QIP** Research Scholar candidate sponsored under Quality Improvement Programme by Government/Semi-Government organizations/institutes who are admitted through QIP admission process. Such candidates will receive their **stipend and contingency grants as per QIP guidelines** issued by MoE. QIP candidate has to perform teaching assistantship as per QIP guidelines. *(Admission under this category is carried out separately as per the QIP guidelines)*

(b) **FIR Candidate: Full time Institute Research Scholar** candidate must be **GATE/NET** qualified once at the time of admission and will receive their **stipend and contingency grants as per MoE guidelines** for a duration of four years and extended to fifth year based on performance review. FIR candidate has to perform teaching assistantship as per MoE guidelines.

(c) **FPS Candidate: Full time Project Staff** candidate will receive the **stipend and contingency grants from the sponsored research project funds** received from agencies like CSIR/SERB/DST/MeitY etc. FPS candidate has to work as project fellow while pursuing the doctoral study.

(d) **ERS Candidate:** The **External Research Scholar** candidates are further classified in the following categories:

(i) **External Research Scholars (Full-Time):** Recipients of complete financial support, including stipends, contingency grants, and project expenses from the sponsoring organizations. The sponsorship letter for an External Research Scholar (Full-time) should be strictly as given in **Appendix I**, which is to be produced during

the interview/test, etc. They have to produce the reliving certificate at the time of Ph.D. registration, as in **Appendix II.**

(ii) **External Research Scholars (Part-time):** Allowed to carry out their research work at the Institute or their parent organization (subject to fulfilment of other requirements, rules, and regulations laid down by the Institute Senate) after fulfilling specific prerequisites at the Institute. They are not entitled to the Institute scholarship. The external candidate should produce a no-objection certificate strictly per the format in **Appendix III** at the time of the interview/written test/ presentation.

(iii) **External Research Scholars (Self-finance):** Expected to work full-time and is subject to the rules of the Institute. They are not entitled to the Institute scholarship *(Applicants need to submit a signed undertaking/declaration of non-employment elsewhere)*.

(iv) **External Research Scholars (Full-Time Study Leave)**: Expected to work full-time at the Institute. They are not entitled to the Institute scholarship. Such candidates must produce sponsorship/relieving certificates from their organizations and submit them along with the application for admission. The format for the relieving certificate is given in **Appendix IV.** In case the candidates are not able to submit the requisite Sponsorship or No Objection certificates, they have to submit a certificate in the prescribed format as per **Appendix VI (Appendix VII)** for candidates working with Govt. of Gujarat) at the time of document verification before written test/interview. Without such a certificate, the candidates cannot appear in written tests/interviews for admission to the PhD program.

Note:

i. FIR candidates if he/she has been serving at the time of applying for Ph.D. admission must submit the undertaking stating that if selected, will submit the relieving letter from the existing organization / institute at the time of joining the Ph.D. programme.

ii. ERS candidates for Ph.D. must enclose self-attested copies of the following documents/certificates, if serving. Same must be produced in original at the time of interview/physical documents verification.
   a. Appointment letter and sponsorship certificate/no objection certificate issued by the current employer *(or undertaking/declaration of non-employment elsewhere, if not serving anywhere and applying as ERS Self sponsored candidate)*.
   b. Experience certificate duly signed by competent authority on the letter head of the Company/Organization/Institute.
   c. Other documents like date of birth and identity proofs, marksheets of all semesters, degree certificates.

iii. Candidate applying under the reservation category should submit the category certificate as per the Government of India format (i.e. Central Government format) either in English or Hindi and ensure the issuing authority is competent as per GoI norms. Candidates applying under OBC_NCL or EWS category should submit the latest certificate issued after 01/04/2025 at the time of application).

A.5) Ph.D course structure

(a) All full-time and part-time candidates must carry out Research for at least a period of three years from the date of registration before submission of thesis. The above duration is inclusive of the coursework assessment.

(b) The candidate must complete his/her Ph.D. programmes within 3 -7 years. If a student fails to submit the thesis within this period, they must immediately re-register for the extension of Ph.D. program. The effective date of re-registration will be the immediate next day of expiry period of 07 years. The request for re-registration should be taken up in advance but not later than the date last day of respective semester registration. However, the student must submit the thesis within 3 years after re-registration. Female Ph.D candidates may be provided maternity leave/child care leave for up to 240 days in the entire duration of the Ph.D program.

(c) Institute Research Scholars (FIR) are eligible to receive scholarship for a maximum period of Four years and extendable to Five years subjected to satisfactory progress made by him/her, critical review and recommendation of RPC panel as well as MoE directives. The duration/amount of fellowship is likely to change as per the directives of Ministry of Education, Government of India from time to time. The candidates may submit their thesis before the end of this period subject to the provisions mentioned in Ph.D. Thesis Evaluation.

(d) The Ph.D. student must earn minimum 12 credits as a part of coursework through three or four theory courses / theory courses with practical (each of 3 or 4 credits)/ Practical Courses without theory credits (2 or 3 credits). However, students cannot earn more than 2 or 3 credits from a Practical course without the theory credits. The candidate may register for these courses from (i) the existing courses being floated for PG Programs in the Institute or (ii) MOOC platform - NPTEL/SWAYAM. The Ph.D supervisors will ensure that students who have completed their PG Programs from this Institute, should not opt for the same course as opted by them in their PG studies. The candidate should score 6.0 CGPA through coursework for the continuity of the Ph.D. programme and thereafter the confirmation of registration shall be done.

Note: This is just a quick summary of the Ph.D course structure covering major points. The Institute academic regulations and subsequent resolutions pertaining to Ph.D, approved by the Senate will be applicable to the candidates.

A.6) Admission procedure

The Ph.D. admission procedure at Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat is conducted as per the following guidelines:

Application process

(a) All applications must be submitted through the official online portal of SVNIT, which is best accessed via Mozilla Firefox.
(b) Candidates can apply for multiple programs, but each program requires a separate registration form and application fee.
(c) Using the provided login credentials, applicants must log in to the admission portal and complete the form.
(d) The application fee must be paid through the online payment system available on the official site.
(e) After submission, a PDF of the completed form will be generated, which should be printed for future reference.

Document submission and presentation

(a) Shortlisted candidates must attend the presentation/interview and/or written test as part of the selection process.

(b) Candidates should bring a printed copy of their online application form along with original documents and a set of self-attested photocopies.

(c) The exact time and venue for the Ph.D. interview will be notified on the institute website along with the list of shortlisted candidates.

Documents required for external research scholars

Applicants under the External Research Scholar (ERS) category must submit the following documents for verification:

(a) Appointment letter and sponsorship certificate/no objection certificate issued by the current employer

(b) Experience certificate duly signed by competent authority on the letter head of the Company/Organization/Institute.

(c) Other documents like date of birth and identity proofs, marksheets of all semesters, degree certificates.

A.7) Fee structure:

For more details, candidates are requested to visit the institute website: https://www.svnit.ac.in/web/fee-structure-inst.php

B) Department wise eligible preceding degrees and qualification in other relevant exams like GATE/NET for Ph.D admission.

- **In addition to the eligibility requirements as given in A.3, the candidate should also fulfil the respective department specific requirements in terms of qualifying degree and qualifying GATE/NET exam.**
- **The broad research areas mentioned below are not the limiting criteria. Candidates having interest in research area other than the below mentioned areas by respective departments are also eligible to apply.**

B.1) Department of Artificial Intelligence

Qualifying degree:

B.E./ B. Tech. in Computer Science & Engineering/ Computer Engineering/Information Technology/Computer Technology/ Information and Communications Technology/ Artificial Intelligence/ Data Science/ Electronics and Communication Engineering or any relevant discipline and M.E./M.Tech. in Computer Science & Engineering/ Computer Engineering/Information Technology/Computer Technology/Information and Communications Technology/ Artificial Intelligence/ Data Science /Electronics and Communication Engineering or any relevant discipline.

Qualifying GATE/NET exam:

Data Science and Artificial Intelligence, Computer Science and Information Technology, Electronics and Communication Engineering or any relevant discipline.

Broad research areas *(but not limited to)***:**

Machine Learning, Deep learning, Artificial Intelligence (Cognitive computing), Natural Language Processing, Generative AI, Responsible AI, Biometrics, Biomedical Image Analysis, Social Networks Analysis, Data Science, Robotics, High-Performance Computing, Quantum Computing, Cloud Computing, Image Processing, Computer Vision, Multimedia Processing (Image Processing, Audio and Speech Processing), Internet of Things, Cyber-Physical Systems, Unmanned Aircraft System (Drone and Related Technology), Soft Computing, Digital/Interactive Media, Blockchain Technology, Augmented and virtual reality.

B.2) Department of Chemical Engineering

Qualifying degree:

- B.Tech./B.E./Equivalent and M.Tech./M.E./ Equivalent in Chemical Engineering and Allied Branches
- B.Tech./B.E./Equivalent and M.Tech./M.E./ Equivalent in Mechanical Engineering
- B.Tech./B.E./Equivalent and M.Tech./M.E./ Equivalent in Civil Engineering
- B.Tech./B.E./ Equivalent and M.Tech./M.E./ Equivalent in Environmental Engineering
- B.Tech./B.E./Equivalent and M.Tech./M.E./ Equivalent in Energy Engineering/Technology
- B.Tech./B.E./Equivalent and M.Tech./M.E./ Equivalent in Electronics Engineering
- B.Tech./B.E./Equivalent and M.Tech./M.E./ Equivalent in Electrical Engineering
- B.Sc. and M.Sc. (or Integrated M.Sc.) in Chemistry and Allied Branches
- B.Pharm. and M.Pharm

Qualifying GATE/NET exam:

GATE/NET examination in relevant branch

Broad research areas *(but not limited to)***:**

Advanced Powder Technology, Advanced Separation and Purification Processes, Biochemical Processes, Bio-materials, Catalysis and Reaction Engineering, Colloidal Science and Surface Engineering, Complex Fluids, Computational Fluid Dynamics, Drug Delivery Systems, Electrochemical Engineering, Energy & Environment, Energy Storage, Energy Conversion and Solar Cells, Food Technology, Green Chemistry and Engineering, Industrial Safety and Hazards Management, Membrane Separations, Microfluidics, Molecular Dynamics Simulations, Nanomaterials and Advanced Materials, Nanoscience/Nanotechnology, Neoteric Green Extraction Techniques, Pharmaceutics, Process Design and Development, Process Modelling and Simulations, Process Intensification, Product Design and Development, Soft Materials, Sustainable and Renewable Energy, Ultrasonics, Waste Valorization, Wastewater Treatment.

B.3) Department of Chemistry

Qualifying degree:

M. Tech / M.Sc. in Surfactant Science/ Chemistry, Polymer Chemistry/ Polymer Science & Technology/ Polymer Science, Material Chemistry/Supramolecular Chemistry, Industrial Chemistry/ Applied Chemistry, Chemistry (Organic, Inorganic, Physical), Chemistry/ Medicinal Chemistry/ Analytical Chemistry, Pharmaceutical Chemistry/ Pharmacy, Computational Chemistry, Environmental Chemistry, Biochemistry/Biotechnology/Microbiology, Nanoscience and Nanotechnology, Oil, Paint & Waxes, Surface Coating Technology, Synthetic Chemistry, Nanoscience/Nanotechnology/Nano chemistry/Material Science, Catalysis Science and Technology, Textile Chemistry and Technology.

Qualifying GATE/NET exam:

GATE/NET examination in relevant branch

Broad research areas *(but not limited to)***:**

Synthetic Organic Chemistry, Corrosion, Phytochemistry., Biofuels, Biopolymers for specialty applications., Functional nanomaterials, Nano sensors, Mass Spectrometry and Biomarkers detection., Supramolecular Chemistry, Molecular Recognition & Chemo sensor, Computational Chemistry., Ionic liquids, MOF, Hydrogels drug delivery, soft matter, Material Chemistry., Heterogeneous catalysis, Parous inorganic & hybrid materials, Catalysed MCRS and biomass derived chemical synthesis, Water treatment through ion exchange., Design and synthesis of bioactive drug candidates, Synthetic Organic chemistry, Extraction of Phytochemicals and their applications Identification and Quantification & Qualification of Chemical markers by HPLC/UHPLC., Surfactants, Polymer Chemistry, Deep Eutectic Solvents, Soft condensed matter, Colloids., Materials Development: COFs, MOFs, POMs and composites for various Application., C-H functionalization, Heterocycles. Synthesis, Synthetic Organic Chemistry., Organic Synthesis, Supramolecular Chemistry, Inorganic Chemistry,

Chiroptical materials, Nano/Bio Sensors applications., Synthetic Organic Chemistry, Fluorescence dye for bio imaging applications, DNA and Peptide based catalysis., Synthetic Inorganic Chemistry, Coordination Chemistry & Catalysis., Theoretical Chemistry, Photochemistry, Atmospheric & Environmental Chemistry.

B.4) Department of Civil Engineering

Qualifying degree:

B.E./ B.Tech. in Civil Engineering or equivalent and M.E./ M.Tech. in Civil Engineering/ Construction Technology & Management/ Environmental Engg./ Geotechnical Engg./ Structural Engg./ Transportation Engineering and Planning/ Urban Planning/ Water Resources Engg. or equivalent or in disciplines consistent with the research areas of the section and department.

Qualifying GATE/NET exam:
GATE in Civil Engineering (CE), Architecture and Planning (AR), Agricultural Engineering (AG), Environmental Science and Engineering (ES), Geomatics Engineering (GE), Chemistry (CY), Engineering Sciences (XE), or NET or CAT or in disciplines consistent with the research areas of the section and department.

Broad research areas *(but not limited to)***:**

Construction Technology and Management: Construction Technology and Management, Project Management, Occupational Health and Safety, Construction Contract and Law, Construction Quality and Safety Management, Project Success, Digital Technology, Heritage Conservation and Management, Welfare Of Worker, Application Of Building Information Modelling, Contract Management, Valuation, Resilient and Sustainable Infrastructure and Construction, Contract Administration, Quantitative Methods in Construction Management, Project Management, Risk and Financial Management, Sustainable Construction, Green Building, Automation in Construction, Project Organization, Construction Economics, Estimation of Project Cost and Bidding Strategy, Construction Contract, Construction Planning, Project Scheduling and Resource Levelling, Construction Equipment Management, Project Monitoring and Control System, Construction Accounts Management, Construction Material Management, Real Estate and Housing, Project Cost and Value Management, Risk and Insurance in Construction, Construction Claims, Disputes, and Project Closure, Application of Digital Technology.

Environmental Engineering: Urban water services, Water quality monitoring, water treatment technologies, Waste water characterization, wastewater treatment processes, wastewater recycling, advanced water and waste water treatment, Emerging water contaminants, Modeling, simulation and optimization of Environmental systems; Ambient air quality monitoring, particulate matter characterization, air quality modeling, emission inventory development, pollutant source identification, source apportionment studies, indoor air quality, air pollution control technologies, air pollution health risk assessment, air pollution policy and regulation, low cost sensor technology for air pollution monitoring, Aerosols characterization, development of air quality management plan, Noise pollution management, noise source identification, noise impact assessment, noise mitigation strategies, Solid waste

management, hazardous waste management, waste minimization, recycling and waste segregation, landfill management, waste-to-energy technologies Circular economy, green energy, Carbon neutrality, Environmental Impact Assessment, Human Health Risk Assessment, Environmental Risk Analysis, climate change and health impact. Life cycle Assessment, Corporate Social Responsibility and sustainable development and GIS and Remote Sensing Applications for Environmental Management.

Geotechnical Engineering: Geotechnical earthquake engineering; Computational geomechanics; Foundation engineering; Seismic hazard study; Liquefaction; Constitutive modelling of soil; Soil-structure interaction; Geotechnical engineering; Soil Characterization, Foundation for offshore structures, Earth dam problems; Rock Mechanics Soil dynamics; Soil stabilization; Expansive soils; Earth retention structures; Slope stabilization; Ground improvement; Reinforced soil structures and geosynthetics; Physical modelling in geotechnics; Centrifuge modelling of geotechnical problems; Optimization techniques and GIS applications for geotechnical problems; Earthquake resistant design of geotechnical structures; Dynamic soil characterization; Landfills and waste containment engineering; Offshore Geotechnique, Use of PIV analysis / Image analysis in Geotechnical Engineering, Stability of Structures on Rockmass, Soft soil engineering, Computational Geomechanics (Numerical Modelling in Geotechnical Engineering) Constitutive Modelling in Geotechnics, Physical Modelling in Geotechnical Engineering, Deep Excavations, Earthquake Geotechnical Engineering (Dynamic Soil Properties), Seismic Hazard Analysis, Conservation of Heritage Structures.

Structural Engineering: Earthquake engineering; wind engineering; offshore structures; masonry, RCC and steel structures. Seismic vulnerability and fragility assessment of structures; Bridge engineering; Machine learning; Probabilistic design methods; Curved grid; Cable networks; Plastic analysis techniques; Structural dynamics; Earthquake engineering; Earthquake disaster management; Vibration control of structures; Wind effects on structures; Inverse problems and artificial intelligence applications; Offshore structures; Improved Structural stability; Reliability based design; Structural Health Monitoring; Disaster Resistant Structures; Structural Retrofitting; Structural Fire Engineering; Fiber Reinforced Polymer (FRP) to prolong life of concrete structures; Conservation and safety assessment of historic structures; Improved armor materials for ballistic impact; durability of concrete; rebar corrosion; modeling of cements; supplementary cementitious materials; use of marble, granite or other waste powder in concrete; composites; high performance concrete; self-compacting concrete; durability of concrete; rebar corrosion; modeling of cements; supplementary cementitious materials; use of marble, granite or other waste powder in concrete; composites; high performance concrete; self-compacting concrete; Strength, stability and dynamics of thin membranes; Plates and shells; Structural optimization; Structural resilience, Structural response to blast, impact and shock loading; Structural Dynamics; Engineering Mechanics; Stability of Structures; Experimental Methods in Structural Engineering.

Transportation Engineering and Planning: Urban Transportation Planning, Traffic Flow Modeling, Public Transport Planning, Regional Planning, Public Bus Transit - Planning, design, and implementation, Dynamic Traffic Flow Modeling, Highway Capacity and Level of Service, GIS and GPS applications in Transportation Engineering, Pedestrian Flow Modelling and Facility Design, Road Safety, Pedestrians and Motorists, Heterogeneous Traffic Flow Modeling and Simulation, Traffic Engineering and Management, Traffic Operation and

Management, Transportation Systems Planning, Design and Operation, Public Transportation and Sustainable Transportation, Road Safety and Simulation, Intelligent transportation systems, AI/ML Application in Traffic Engineering and Road Safety, Pavement Engineering - Materials, Design, Analysis, Construction, Evaluation, Maintenance, and Rehabilitation, Utilization of industrial wastes, Geosynthetic, Chemical Stabilizers, Cement, Fly ash, lime and Others Non-Conventional Materials for Subgrade, Subbase and Base Engineering, Use of LWD, FWD, and others NDT instruments for QA & QC of Pavement, Highway Economics Analysis using HDM-IV and other Software.

Urban Planning: Smart Cities and Infrastructure, Climate-Resilient Urban Planning, Green Building and its applications, Urban Sprawl and Land Use, Affordable Housing and Urban Density, Regional Planning, Urban Governance, Urban Finance, Sustainable Urban Mobility, Urban Heat Island Effect and Mitigation, Urban Water Management, Post-Disaster Urban Reconstruction, AI/ML in Urban Planning.

Water Resources Engineering: Fluid Mechanics, Water Resources Engineering, Irrigation Engineering, Enhancement of Crop Yield, Ground Water Hydrology, Recharging of underground water sources, Flood Mitigation, Climate Change, Sediment Transport, Water Supply Distribution System.

B.5) Department of Computer Science and Engineering

Qualifying degree:

B.E./B.Tech. in Computer Science and Engineering or equivalent and M.E./M.Tech. in Computer Science and Engineering / Computer Science and Technology/ Computer Science and Engineering with Specialization in Information Security and Privacy / Computer Science and Engineering with Specialization in Data Science / Information Technology / Computer Engineering / Information Security / Information and Cyber Security / Computer Engineering (Cyber Security) / Computer Science and Engineering (Cyber Security) / Data Science / Data Science and Engineering / Artificial Intelligence / Information Security and Privacy / Cyber Security / Information Systems Security Engineering / Data Analytics / Advanced Computing / Computer Science and Engineering with Specialization in Artificial Intelligence and Data Science / Artificial Intelligence and Machine Learning / Computer Science and Engineering with Specialization in Artificial Intelligence and Machine Learning / Computer Science and Information Security / Artificial Intelligence and Data Science / Computer Networking / Electronics and Communication Engineering / Bioinformatics / Computer Science and Engineering (Analytics) / Computer Science and Engineering (Artificial Intelligence) / IT with Specialization in ML, Robotics, and Human Computer Interaction Group / IT with Specialization in Network and Security Group / IT with Specialization in Software and Data Engineering Group / Drones and IoT / Aerospace Engineering (UAVs) / Robotics and Automation / Machine Learning and Computing / Mathematics and Computing / Computational and Data Science / Software Engineering / Quantum Computing or equivalent/ any other not mentioned above may be included after DAAC approval.

Qualifying GATE/NET exam:

Computer Science and Information Technology / Data Science and Artificial Intelligence

Broad research areas *(but not limited to)***:**

Artificial Intelligence (AI) and Machine Learning (ML): Probabilistic Graphical Models, Statistical relational learning, AI/ML/DL, Active Learning, Federated Learning, Reinforcement Learning, Robot Learning, Ethical AI, Knowledge Representation, Memory based Reasoning, Memory Models, Explainable AI, Generative AI, Pattern Recognition, Fuzzy Classification, Fairness and reliability in ML, Privacy issues in ML, Feature Engineering, Meta-Heuristics based dimensionality Reduction Techniques, ML for social networks, ML applications to healthcare, Knowledge-based AI, AI for robotics, ML for UAV, ML for remote sensing, Robotics, Swarm Intelligence, Applied Machine Learning.

Algorithms and Complexity Theory: Algorithmic graph theory, Computational geometry, Randomized algorithms, Approximation algorithms, Complexity theory, Online algorithms, Parallel algorithms.

Bioinformatics: Biomedical Data Analysis, Cognitive Science, Authentication and Key Agreement protocols in Telecare Medicine information system, Privacy Preserving in E-Healthcare, Brain computer interface.

Cyber Security and Secure Information Systems: Formal notions of security, Formal verification for security, Language-based security, Secure architectures and Embedded systems, Network Security, Cryptography Protocols, Secret Sharing Schemes, Secure Multiparty Computation, Blockchain-based systems, Privacy and data protection, Electronic voting, Digital Identity, Security and Privacy in Social Media Contents, Information Security & Privacy Issues in Resource-Constrained Environments, Machine Learning Applications in Security, Software Security, Secure Software Engineering and Software Requirements Specifications, Blockchain and DLT, Privacy-Preserving Techniques, Online Social Networks, Cyber-Physical Systems, Smart Grid Security, Cryptography and Network Security, Network-on-Chip (NoC) Security, Security in Cloud/Fog/Edge computing, Security in Android/iOS OS.

Computer Networks: Mesh networks, Wireless networks, Mobile communication, Network security, Operating systems security, Wireless Sensor Network Tracking and Localization, Security in Machine to Machine (M2M) Communications, Secure Group Communication in M2M Networks, Wireless Sensor Networks, Data Networking, Routing in On-Chip Networks., Software Defined Networking.

Computer System: Hardware-software co-design, Embedded systems design, Reconfigurable computing, Fault-tolerant computing, Multiprocessors, and Memory Models, Architectures for machine learning, Architectures for computer vision, Secure architectures, Advanced Computer Architecture, P2P computing, Compiler Design, Software Requirements Analysis, System Programming, Multi-core Programming and Optimization, System-on-Chip (SoC) and Network-on-Chip (NoC) Design.

Computer Vision and Image Processing: Computer Graphics, Computer vision, Image Processing, Video Processing and Analytics, Virtual Reality, Mobile Multimedia, Embedded computer vision, Robotic vision, Medical image analysis, Object Detection and Tracking, Motion Analysis, Image Reconstruction, Multi-camera Vision Systems, Soft Computing, Visualization and Perception.

Databases and Big Data Analytics: Information Retrieval, Information Dissemination in social networks, Semantic Web Data Management, Intention Mining, Opinion mining, Indexing and Querying in Graph Databases, Spatio-temporal Data Analytics, Data Wrangling, Data Warehousing, Legal Data Analytics, Biomedical Data Analysis, Database Management

Systems, Advanced Data Structure, Data Mining, Graph Mining, Sequence Mining, Text Mining, Trajectory Mining, Social Network Analysis, Big Data Analytics.

High-Performance Computing & Parallelization: Distributed Systems, Anonymous Remote Computation and Communication, Distributed Computing, Cloud/Fog/Edge Computing, Concurrency Control, Distributed Operating Systems, Load Balancing, Content Distribution, Community media, Mobile Health, Governance and accountability, OpenMP, MPI and CUDA Based Parallelization.

Natural Language Processing (NLP): Intelligent information systems, Large language models, Information Extraction, Linguistic Analysis, Applications of NLP, Knowledge-based Completion, Neural Architectures for NLP.

B.6) Department of Electrical Engineering

Qualifying degree:

B.E./ B.Tech. in Electrical Engineering **or** Electrical and Electronics Engineering **or** Electrical and Instrumentation Engineering **or** equivalent and M.E./ M.Tech. in Electrical Engg./ Power Electronics/ Power Electronics and Electrical Drives/ Power Systems/ Control and Automation/ Instrumentation and Control/ Instrumentation/ Power Electronics/ Power and Control/ Electric Vehicle Technology/ Renewable Energy Systems/ High Voltage Engg./ Industrial Power and Automation/ Smart Grid/ Micro Grids, or equivalent.

Qualifying GATE/NET exam:

Electrical Engineering / Electronics and Communication Engineering/ Instrumentation Engineering

Broad research areas *(but not limited to)***:**

Power Electronics and Drives: Power Electronics, Electrical Drives, Electrical Vehicle Technology, Multi-level inverters, Multi-phase Motor Drives and control, Power Quality, Renewable Energy Systems, Self-excited induction generators, High gain Converters, High Power Converters, Photovoltaic System Modeling & Simulation, Photovoltaic Power Converters and Control, PV Power Applications for battery Charging and Grid interface, PV to EV- photovoltaic to electrical vehicles, Custom Power Devices and its Application, DC/DC Converters and Soft Switching Techniques, Optimization Algorithms, Soft Computing and Adaptive Algorithms, Distributed Power Generation System and Smart Grid Technology, Power converters for EV battery charging, Resonant DC-DC Converters, Custom Power Devices, wireless power transfer, Distributed generation, Active power filters, Digital Control of Power Electronic Converters Microgrid, Power Quality Electric Drives, Hybrid Renewable Energy Systems Optimization, Grid Tied Inverters, Fault Tolerance and Detection, Artificial Intelligent Control Techniques.

Power Systems: Power Systems, Power system reliability, Power System Dynamics, Novel Algorithms for Power Flow Analysis and Power System Stability, Power Electronics & its applications Power systems, HVDC, FACTS Controllers, Application of Digital Signal Processing in High Voltage Engineering, Partial Discharge and Condition Monitoring, Electromagnetic Field Computation using Finite Element Method, Cyber security of smart grid, Restructuring/Deregulation, energy market, Congestion management, Power quality improvement, active power filters, Planning and Management Forecasting, Renewable Energy and its impact in power systems, Artificial Intelligence Techniques, Machine/Deep learning,

Load modelling for power flow analysis, Modelling of distribution system, Electric Vehicle (EV) integration to the grid, Energy Management System, Power System State Estimation, Optimal Scheduling of loads.

Control and Automation: Control Systems, Mathematical control theory, Dynamical systems, Stochastic processes and its automation, Stochastic filtering, stochastic differential equations, Optimal control theory, Meta heuristic algorithms.

B.7) Department of Electronics Engineering

Qualifying degree:

B.E./ B. Tech. in (Electronics, Electronics and Communication Engineering, Electronics and Instrumentation Engg., Instrumentation and Control Engg., Electrical Engg., Electronics and Electrical Engg., Computer Science Engg., Information Technology Engg., or equivalent)

AND

M.E./M.Tech. in Electronics and Communication Engineering /Communication System Engg./ VLSI & Embedded System /Signal and Image Processing/ VLSI System / Computer Science and Engg./ RF & Microwave Engg., Communication & Networks, Microelectronics & VLSI Design, Next Generation Communication and Networks, Electronics Design & Technology, Telecommunication, Electrical Engineering, or equivalent

Note:
Applicants with M.Sc./Integrated M.Sc. in (Physics, Electronics, Nanotechnology, Optoelectronics, Quantum technology) degree are required to fulfil the requirement of 40 credits.

Qualifying GATE/NET exam:

GATE: Electronics & Communication Engineering, Electrical Engineering, Computer Science & Information Technology, Instrumentation Engineering, Physics

NET: Electronic Sciences, Computer Science and Applications, Physical Science

Broad research areas *(but not limited to)***:**

Communication Systems: Wireless Communication, 5G and beyond Networks, Visible Light Communication, Optical Communication & Networks, Microwave and Photonic Devices, Adaptive Interference Mitigation System for NAVIC Receiver, mm Wave / Massive MIMO System for 5G Vehicular Technology, SDR based Systems, Machine Learning and Signal Processing for wireless Communication, Free Space Optics, Software Defined Networking, Li-Fi Systems, NavIC/IRNSS/GNSS Based System and Research, Jamming, Spoofing Detection and Mitigation, Massive MIMO Technology, Reconfigurable Intelligent surface based communication, Object Detection and Mapping, Cognitive Radio, Machine Learning for Wireless Communication, Quantum Technology (Imaging, Sensing and Communication), Vehicular Ad Hoc Networks, Healthcare IoT, Internet of Vehicles, 5G Internet of Things, Industrial Internet of Things (IIoT), Intelligent transportation systems, smart metering, Localization, surveillance, Next Generation Communications, Drone and its applications, Defense applications, Underwater Navigation.

VLSI & Embedded Systems: DSP VLSI Architecture, FPGA Based System Design for Image/Video Processing, VLSI Design, Design, Simulation and Fabrication of Novel Semiconductor Devices, Digital VLSI Design, Low Power VLSI, Analog IC Design, Application Specific Processor Design, Device-Circuit Interactions in Nanoscale Transistors, Physics & Modelling of Nanoscale Devices, Reliability of Semiconductor Devices/Circuits, Emerging Memory Technologies, Modelling of Nanoscale Devices, MEMS, Energy Storage Devices (Supercapacitors and Fuel Cells), Optoelectronic Devices (Photovoltaics, Photodetectors), Solar Photovoltaics, Solar Photovoltaic and energy harvesting, ADC Design for Biomedical Applications, RISC-V and SoC Design, High Performance Embedded Systems, Hardware Accelerator for AI/ML Application, Edge Computing, Robotics, Drone Technology, Precise positioning solutions for drones, smart farming

Signal and Image Processing: Biomedical Instrumentation, Biomedical Signal Processing, Signal and Image Processing, Application of Adaptive Filter and Control Theory, Estimation and Detection Theory, Nonlinear Control Systems and Lyapunov Instability, Image Coding, Computer Vision and Image Processing, Speech Processing, Speech based Disease Diagnosis, Emotion Analysis from speech and image, Signal processing and machine learning, Neural Networks and Deep Learning, Machine Learning

RF & Microwave Systems: Antenna Design, RF and Optical Sensors, Development of RF Active and Passive Devices, Machine Learning in Antenna Designing, RF Energy Harvesting, Development of RF front-end receiver system for GNSS application, Development of EMI shields using agricultural waste.

B.8) Department of Humanities and Social Sciences

(Presently, Ph.D Admissions are Open only in English and not in other Humanities and Social Science disciplines)

Qualifying degree:

BA English (Hons)/ BA with English and M.A. (English)

Qualifying GATE/NET exam:

GATE/NET in English

Broad research areas *(but not limited to)***:**

Postmodern Fiction, Indian English Fiction and Feminist Literature, Themes in Diaspora literature, English Language Teaching, Phonetics, Linguistics and Cultural Studies.

B.9) Department of Management Studies

Qualifying degree:

(i) Master in any discipline (MBA/M.Tech./M.S./M.Sc./ M.A./ M.Com./ MCA/ LLM/ M.Pharm./ M.Phil./MMS (Master of Management Studies) / MHRD (Master of Human Resource Development) / MPA (Master of Public Administration)/ CS / CA/ Economics, etc.) or 2 year PG Diploma in Management from institutions/universities incorporated by an act of parliament or state legislature in India or other institutions declared to be deemed as University under Section 3 of the UGC Act, 1956, or possess an equivalent qualification

recognized by the Ministry of Education, Government of India or AICTE or AIU or reputed foreign university.

OR

(ii) Executive MBA of at least one year duration from IITs/IIMs or institutions / universities incorporated by an act of parliament or state legislature in India or other institutions declared to be deemed as University under Section 3 of the UGC Act, 1956, or possess an equivalent qualification recognized by the Ministry of Education, Government of India or AICTE or AIU or reputed foreign university.

Note: Candidates registered for the Ph.D. program under the Department of Management Studies, who do not have an MBA as their qualifying degree, are required to complete a minimum of 18 credits as part of their coursework.

Qualifying GATE/NET exam:

CAT conducted by IIMs / NET – Management (including Business Administration and Management / Marketing / Marketing Management / Industrial Relations and Personnel Management / Personnel Management / Financial Management /Co-operative Management) / NET - Labour Welfare / Personnel Management / Industrial Relations / Labour and Social Welfare / Human Resource Management / NET – Commerce is required.

Broad research areas *(but not limited to)***:**

Marketing, Finance, Financial Markets, Techno-Entrepreneurship, Foreign Institutional Investments, Women Entrepreneurship, Green Supply Chain Management, Green Brand Equity, Consumer Behaviour, Industry 4.0, Green HRM, Social Entrepreneurship, Online Learning, and Environment Social and Governance, Sustainability, Fintech, Financial time series analysis.

B.10) Department of Mathematics

Qualifying degree:

B.Sc./ B.S. in Mathematics / Mathematics and Computing or B.Tech. in Mathematics and Computing.

AND

M.Sc./ M.S./ M.Tech. in Mathematics / Mathematics and Computing / Computational Mathematics or relevant discipline

OR

Five Years Integrated / Dual Degree Programme in Mathematics / Mathematics and Computing /Computational Mathematics or relevant discipline

Qualifying GATE/NET exam:

Mathematics / Computational Mathematics / Computer Applications

Broad research areas *(but not limited to)*:

Mathematical Analysis, Mathematical Modeling and Simulations, Mathematical / Computational Biology, Mathematical Statistics, Numerical & Classical methods, Fluid mechanics / Dynamics, Operations research, Algebra, Bioinformatics/Biomathematics/ Biocomputing, Data mining, Image Mining, Computational Mathematics etc.

B.11) Department of Mechanical Engineering

Qualifying degree:

B.E./B.Tech. and M.E. / M. Tech. in Additive Manufacturing / Aerospace Engineering /Automation and Robotics /Automation Engineering /Automotive Design Engineering /Automotive Engineering /Industrial and Management Engineering/Industrial and Production Engineering /Industrial Engineering and Management /Industrial Engineering /Industrial Management /Industrial Manufacturing Engineering /Manufacturing Engineering and Automation /Manufacturing Engineering and Technology /Manufacturing Engineering /Manufacturing Process and Automation Engineering /Manufacturing Process /Manufacturing Science and Engineering /Manufacturing Technology /Mechanical and Automation Engineering /Mechanical and Mechatronics Engineering (Additive Manufacturing) /Mechanical and Smart Manufacturing /Mechanical Engineering (Design and Manufacturing) /Mechanical Engineering (Industry Integrated) /Mechanical Engineering (Manufacturing Engineering) /Mechanical Engineering (Production) /Mechanical Engineering (Smart Manufacturing) /Mechanical Engineering (Welding Technology) /Mechanical Engineering Automobile /Mechanical Engineering Design /Mechanical Engineering /Mechanical Stream – Production Engineering /Mechanical with specialization in Automotive Engineering /Mechatronics /Production and Industrial Engineering / Production and Management /Production Engineering and Management / Production Engineering /Robotics and Automation or equivalent.

Qualifying GATE/NET exam:

Mechanical Engineering, Production and Industrial Engineering, Aerospace Engineering, Metallurgical Engineering, Environmental Science and Engineering, Naval Architecture and Marine Engineering, Engineering Sciences

Broad research areas *(but not limited to)*:

Thermal and Fluids Engineering: Electric Vehicles, Battery Thermal Management System (BTMS), Heat pipe, Flow boiling in Microchannel Heat Sink (MCHS), Cryogenics, Nanofluids, NE/ME PCM slurry, Computational Fluid Flow and Heat Transfer, Multiphase Flow, Non-linear Analysis, Phase Change Applications, Turbomachines, Solar Thermal Systems, Waste to Energy, Biogas, biodiesel, Biogas reformation to Hydrogen rich Syngas, Alternate fuels for I C Engines, Energy Conservation and Management, Internal Combustion Engines, Engine Tribology, Fuel Processing Tech, Refused Derived Fuels for furnaces, Energy Storage, Energy and Buildings, Energy Management & Efficiency, Energy Modelling, Process Integration, Pinch Analysis, Thermal System Analysis, Fuel Cell Technology, Jet propulsion, Compressible fluid flow, Heat Exchanger, Passive Cooling in Building, Thermal Energy Storage, Micro

Hydro Turbine, Combustion, Thermoacoustics instability, Combustion diagnostics, Water Purification and Portability, Pyrolysis and Gasification of Coal and Biomass, Pyrolysis, Gasification, Desalination, Radiation Transport in Participating Media, Fluid Flow and Heat Transfer in Porous Media, Radiation Therapy, Bio-heat Transfer, Solar Thermal Desiccant air conditioning and Adsorption Refrigeration, Plastic and Biomedical waste management.

Design Engineering: Tribology, Deterministic Finite Element Analysis and Stochastic Analysis, Modeling of Aerospace Engineering Structures, Functionally Graded Material Structures, Smart Material Structures, Deterministic FEM and Stochastic analysis of Free and forced vibration, Buckling, Bending, Stability Failure, and Dynamic Analysis of Laminated Composite and Sandwich Structures, Deterministic Finite Element Analysis and Stochastic Analysis of Pressure Vessel, Modeling Structural Analysis and Modeling of Nanomaterial and Structures, Condition Monitoring, Bearing Design, Hydrodynamic/Hydrostatic Lubrication, Finite Element Analysis, CAD-CAM Analysis of Steam Turbine, Wear of Machine Components, Mechatronics, Robotics, Fracture mechanics, Computational Fracture and Damage Mechanics, Study of Fatigue behaviour of aircraft panels, Dynamic response of damaged panels, Rotor Vibrations, Vibration Analysis, CAD Modelling, Energy Harvesting, Fiber-Reinforced Polymer Composites, pressure Vessel Design.

Materials and Manufacturing Engineering: Composite Material, CAD/CAE, Reverse Engineering, Additive Manufacturing Processes, 3D printing filaments & raw materials, hybrid composites, unconventional machining processes, micro machining processes, modeling & optimization of manufacturing processes, Incremental Forming, AI Applications in Sheet Metal Forming, Press Tool Design, CIM, Corrosion Engg, Thin films Physical Metallurgy of Al alloys, Casting, Metal matrix composite/ Nano composite, Lightweight materials, Plasticity and deformation behavior of materials, Microwave Processing, Digital Image Correlation, Forming applications in Biomedical fields, Industry 4.0 in Manufacturing, Mechanical Metallurgy, Processing - texture relationship, Deformation and thermo-mechanical processing, Microstructure-mechanical property correlation, Welding of Metals and Alloys, Friction stir welding and processing, Dissimilar metals joining, Resistance spot welding, Cold Metal Transfer, Hybrid welding and joining, Microstructure and materials processing, Wire arc additive Manufacturing, Solidification processing of light alloys, Composites and foams using conventional and non-conventional solidification techniques, Microstructural and Mechanical Characterizations, Plasticity, Metal Forming, Severe Plastic Deformation.

Industrial Engineering: Advanced engineering optimization techniques, and their applications, Supply Chain Management, Sustainable and Green Supply Chain Management, Reverse Logistics, Lean Six Sigma, Knowledge Management, Multi Criteria Decision Making Methods, Machining Optimization, Decision Making in the manufacturing environment, Circular economy, Circular supply chain, Multimodal logistic system.

B.12) Department of Physics

Qualifying degree:

Master's Degree in Physics/ Electronics/ Nanotechnology/ Material Sciences/ Energy or relevant area of research.
Candidate who has qualified for the award of Bachelor's degree in Engineering Physics from an Institute of National Importance including Centrally funded technical institutions of repute

/ State Government funded institutes with exceptionally good academic record will also be considered for direct admission to Ph.D. Programme.

Qualifying GATE/NET exam:

Physics, Engineering Sciences

Broad research areas *(but not limited to)***:**

Advanced Materials Physics (Experimental & Theory), Condensed Matter Physics (Experimental & Theory), Nanoscience (Experimental & Theory), Nano-bio Physics (Experimental & Theory), Plasma Physics (Experimental & Theory), High Energy Physics (Theory), Nuclear Physics (Experimental), Space Physics (Experimental & Theory)

B.13) Centre for Tribal Technology Development

Qualifying degree:

Ph.D admissions at the Centre for Tribal Technology Development can be permitted in the available expertise domain with the centre along with the following criteria:

a. Master's or equivalent degree in Engineering/Technology.
b. M.B.A (or equivalent degree)
c. MA English and Linguistics
d. Bachelor's degree in Engineering / Technology (Minimum 4 years) with a valid GATE score.

Other admission criteria shall be in line with the present academic regulation of the Institute Ph.D Program.

Qualifying GATE/NET exam:

Qualifying GATE/NET exam in the relevant area.

Broad research areas *(but not limited to)***:**

Sustainable Resource Management: Water & forest conservation, climate change adaptation, sustainable water management, deforestation impact, ecosystem restoration.

Food Processing and Characterization: Tribal food resources preservation, nutritional analysis, value-added products, quality testing, eco-friendly packaging, post-harvest handling.

Bamboo Craft Design: Bamboo cultivation, craftsmanship, value chain development, eco-friendly products, market integration, standardization.

Agriculture Technology: Machinery & Tool Innovation: Low-cost machinery design, sustainable tools, renewable energy, mechanization, agricultural innovation, productivity enhancement.

Sustainable Agriculture: Indigenous practices, crop diversification, organic farming, soil & water conservation, agroforestry, climate-resilient practices, digital land mapping.

Minor Forest Produce and Marketing: Sustainable harvesting, value addition, market analysis, branding, biodiversity conservation, MFP marketing.

Tribal Knowledge System: Documentation of indigenous knowledge, ecological practices, ethnobotany, oral traditions, tribal architecture, Knowledge transfer and empowerment through

education in tribal communities, co-development of technologies based on traditional knowledge.

B.14) Centre for Indian Knowledge Systems and Holistic Education

Qualifying degree:

Masters' degree from recognized universities in Humanities, Sciences, Arts, Social Sciences and Engineering.

Qualifying GATE/NET exam:

Qualifying GATE/NET exam in the relevant area.

Broad research areas *(but not limited to)***:**

Relevant interdisciplinary research areas across Humanities, Sciences, Arts, Social Sciences and Engineering.

Note:

(a) Eligibility criteria of prospective students will be defined year to year based on the requirement after following the common selection criteria of the doctoral program of the Institute.
(b) Candidate can apply along with a research proposal, depending on the eligibility and availability of interested faculty member.
(c) Interested faculty members can express their interest in an area of Indian Knowledge Systems for admitting Ph.D students.
(d) Each proposal with different research domain, may have a separate committee to decide the shortlisting criteria and mode of selection. The selection committee will be decided by the centre Head in consultation with the Dean Academic.

APPENDIX – I

Sponsorship Letter for External Research Scholar
(Full-Time Sponsored Candidates)

(This should be typed on Letter Head of the Sponsoring Organization)

To,
The Director,
Sardar Vallabhbhai National Institute of
Technology, Surat 395 007.

Sub.: Sponsoring of an Employee for Ph.D. Programme- External Research Scholar (Full Time)

Dear Sir,

We hereby sponsor candidature of Shri/Kum/Smt _____

who is an employee in our Organization, for joining Ph.D. programme in Department of _____ at your Institute as an External Research Scholar (Full Time).

We shall bear the total expenses of his/her studies, we shall fully relieve him/her from his/her duties in the Organization for the complete duration of Ph.D. programme to enable him/her to devote full time to the studies (minimum three years).

Signature of Head of
Organization with Seal
and Date

APPENDIX – II

Relieving Letter for External Research Scholar
(Full-Time Sponsored Candidates)

(This should be typed on Letter Head of the Sponsoring Organization)

To,

The Director,

Sardar Vallabhbhai National Institute ofTechnology,
Surat 395 007.

Sub.: Relieving an Employee for Ph.D. Programme- External Research Scholar (Full Time)

Dear Sir,

We hereby relieve Shri/ Smt./ Kum. _____,

an employee of this Organization, on Full pay leave for joining Ph.D. Programme at SVNIT, Surat for a period of _____years (at least three years).

Signature of Head of Organization with
Seal and Date

APPENDIX – III

No Objection Certificate for External Research Scholar (Part Time)

(This should be typed on Letter Head of the Sponsoring Organization)

To,
The Director,
Sardar Vallabhbhai National Institute of
Technology, Surat 395 007.

Sub.: No Objection Certificate to pursue Ph.D. Programme for External Research Scholar (Part -Time)

Dear Sir,

We hereby have no objection to the candidature of Mr./Ms _____, who is an employee in our Organization, for joining Ph.D. programme in the department of _____at your Institute as External Research Scholar (Part Time).

We grant him/her permission to complete the course work requirements during the Ph.D. programme.

Signature of Head of Organization with Seal and Date

APPENDIX – IV

Relieving Letter for External Research Scholar (Full Time Study leave)

(This should be typed on Letterhead of the Organization)

To,
The Director,
Sardar Vallabhbhai National Institute of Technology, Surat 395 007.

Sub.: Relieving an employee on External Research Scholar -Full Time Study leave**.**

Dear Sir,
We hereby sponsor the candidature of Mr. /Ms. _____,
an employee of this Organization and relive him / her on Study Leave without any financial assistance for joining Ph.D. programme at SVNIT, Surat for a period of ____Years (minimum three years).

Signature of Head of Organization with Seal and Date

APPENDIX-VI

Certificate to be issued by Parent Organization, and be produced at the time of Interview (in case sponsorship letter or No Objection Certificate is not available)

Date:

Mr./Ms._____is a full-Time employee and working as_____in_____ Department of this Institute. He/she is interested in joining the PhD program in Department of _____ SVNIT Surat under External Research Scholar -Full Time Sponsored / External Research Scholar -Part Time / External Research Scholar - Full Time study Leave.

He/she will be issued sponsorship certificate or No Objection Certificate and relieving letter by competent authority, if he/she is offered admission in SVNIT Surat and will be submitted at the time of registration in the programme.

Date Principal/Director

(Stamp and Seal)

APPENDIX VII

Certificate to be issued by Parent Organization from Govt. of Gujarat, and be produced at the time of interview (in case sponsorship letter or No Objection Certificate and relieving letter is not available)

Date:

Mr./Ms._____is a Full-Time employee and working as_in

_____Department of this Institute. He/she is interested in joining PhD program in Department of _____SVNIT Surat under External Research Scholar- Full Time Sponsored / External Research Scholar-Part Time / under External Research Scholar-Full Time Study Leave. He/she will be issued sponsorship certificate or No Objection Certificate and relieving letter by competent authority, if he/she is granted admission in SVNIT Surat within one year after getting confirmation of admission. In case, the relevant certificate is not issued by the competent authority within the prescribed duration, his/her admission be treated as cancelled from SVNIT, Surat.

Date
Principal/Director (Stamp and Seal)