



**Admission for PhD (Full-Time/Part-Time)  
Under Visvesvaraya Scheme for Electronics and IT  
Academic Year 2025-26  
(July 2025)**

Applications are invited for the Full Time and Part Time PhD seats under the Visvesvaraya PhD Scheme for Electronics and IT: Phase II' at Sardar Vallabhbhai National Institute of Technology, Surat for Academic Year 2025-26 in the following Departments and Programme.

Sr. No.	Department/Programme	Number of Seats
1	Artificial Intelligent Computer Science and Engineering Electrical Engineering Electronics Engineering	03 Full Time 01 Part Time
2	Under Chips-to-Startup (C2S) Programme under Project "Secure and Energy-efficient Mixed-domain Compute in memory-based AI accelerator Chip for Edge Applications"	02 Full Time

For the more details regarding the eligibility criteria and academic rules and regulations of PhD, kindly refer the institute website [www.svnit.ac.in](http://www.svnit.ac.in) and Information Brochure for the admission to PhD Programme. Refer the SOP of the Visvesvaraya PhD Scheme for more details of the salient features of this scheme.

**Admission schedule**

Sr. No.	Events	Important dates
1.	The 'initial' date of on-line registration and non-refundable fee payment	April 24, 2025
2.	Last date of registration and non-refundable fee payment	May 20, 2025 (11:59 pm, IST)
3.	Last date of submission of on-line application forms	May 24, 2025 (11:59 pm, IST)
4.	Display of eligible candidates' list by the respective Academic Departments	June 04, 2025
5.	Physical reporting of candidates to the concerned Academic Departments for written test/presentation:  Department of Artificial Intelligence, Department of Computer Science & Engineering, Department of Electrical Engineering, Department of Electronics Engineering.	June 18, 2025
6.	Display of selected candidates' lists at the Institute website	June 23, 2025
7.	Payment of the semester fee and registration	July 01-10, 2025
8.	Commencement of the semester	July 28, 2025

**Important note:** In case of holiday on any particular date, next working day will be applicable.

### Available Faculties with Research Areas in various Departments

Name of Department/ Project	Faculty Name	Research Area
chips-to-start-up program	PROF.ANAND DARJI	Under The Chips-To-Start-Up Project On “Secure And Energy-Efficient Mixed-Domain Compute In Memory-Based Ai Accelerator Chip For Edge Applications”
	DR. ZUBER M. PATEL	
	DR. PINALKUMAR ENGINEER	
	DR.ABHISHEK ACHARYA	
	DR.SANDEEP MISHRA	
Artificial Intelligence	DR.TANMOY HAZRA	Artificial Intelligence
Artificial Intelligence	DR. RAHUL DIXIT	Deep-Fake Detection
Artificial Intelligence	DR. NITESH ASARAMJI FUNDE	Smart Grid
Artificial Intelligence	DR. PRAVEEN KUMAR CHANDALIYA	Deep Learning Algorithms For Computer Vision Applications
Artificial Intelligence	DR. ROHIT KUMAR	Artificial Intelligence
Computer Science and Engineering	PROF. DEVESH C JINWALA	Yet To Be Decided
Computer Science and Engineering	PROF. MUKESH AJITKUMAR ZAVERI	Image Processing
Computer Science and Engineering	PROF. RITU TIWARI	Artificial Intelligence
Computer Science and Engineering	DR. DIPTI P. RANA	Big Data Analysis Using Machine Learning Technique
Computer Science and Engineering	DR. KRUPA NILESH JARIWALA	Machine Learning
Computer Science and Engineering	DR. BALU LAXMAN PARNE	Advanced Security Schemes For Cyber- Physical Systems
Computer Science and Engineering	DR. CHANDRA PRAKASH	Explainable Artificial Intelligence Applications
Computer Science and Engineering	DR. KEYUR PARMAR	Blockchain And Smart Contracts
Computer Science and Engineering	DR. ALOK KUMAR	Advancing Secure Authentication And Digital Signatures Through Quantum And Post- Quantum Cryptography

Computer Science and Engineering	DR. ABHILASHA CHAUDHURI	Advancing health care the role of machine learning in medical diagnosis
Computer Science and Engineering	DR. ANUGRAH JAIN	Machine Learning
Electrical Engineering	DR. ASHISH KIRANBHAI PANCHAL	Embedded Control For Solar Energy Operated Electric And Hybrid Vehicle
Electrical engineering	PROF. VARSHA SHAH	Design, Analysis, And Control Of Power Converters For Electric Vehicle Charging Systems
Electrical Engineering	DR. SANJAY TOLANI	Design, Analysis, And Control Of Power Converters For Electric Vehicle Charging Systems
Electrical Engineering	DR. KUNISSETTI V PRAVEEN KUMAR	Design, Analysis, And Control Of Power Converters For Electric Vehicle Charging Systems
Electrical Engineering	DR. SURESH LAKHIMSETTY	Embedded Control For Solar Energy Operated Electric And Hybrid Vehicle
Electronics Engineering	PROF. JIGNESH N SARVAIYA	Image Processing
Electronics Engineering	PROF. ANAND DARJI	Low Power Vlsi Design
Electronics Engineering	PROF. PIYUSH N PATEL	Antennas
Electronics Engineering	DR. SHILPI GUPTA	5g And Beyond Communication System
Electronics Engineering	DR. ABHISHEK ACHARYA	Semiconductor Technology For 5g And Beyond
Electronics Engineering	DR. SHWETA SHAH	5g And Beyond Communication System
Electronics Engineering	DR. PINALKUMAR ENGINEER	Vlsi Circuits And Systems For Neuromorphic Intelligence
Electronics Engineering	DR. KIRTI INAMDAR	Design Of Cascode Class E Power Amplifier With Dohert Principle For 5g Applications
Electronics Engineering	DR. DEEPAK JOSHI	Nanoelectronics
Electronics Engineering	DR. KAMAL MANHARLAL CAPTAIN	5g And Beyond Communication System
Electronics Engineering	DR. SUMAN DEB	Automatic Voice Pathology Detection System From Speech Signals
Electronics Engineering	DR. VIVEK GARG	Micro And Nano-Scale Devices And Sensors

Electronics Engineering	DR. RAGHAVENDRA PAL	5g And Beyond Communication System
Electronics Engineering	DR. NITHIN CHATTERJI	2d Materials For Flexible Electronics
Electronics Engineering	DR.SANDEEP MISHRA	In-Memory Computing Architecture
Electronics Engineering	DR.PARTHA DAS	Memristor Based Ultra Low Power Neuromorphic Spiking Architecture And Its Applications

## Visvesvaraya PhD Scheme for Electronics & IT- Phase II

### 1. Background

MEITY has approved implementation of Phase-II of Visvesvaraya PhD Scheme for Electronics & IT with the objective of enhancing the number of PhDs in the Electronic System Design and Manufacturing (ESDM) and IT/IT Enabled Services (ITES).

Phase-I of the Scheme, was implemented in 25 states and 4 Union Territories. It has been decided to continue the scheme for Phase-II to help increasing the number of PhDs in the country to enable India to compete globally in the coming decades, to develop an ecosystem of research, development and IP creation in these knowledge intensive sectors.

### 2. Salient Features of Phase-II

- 2.1** The scheme aims at generating a total of 1000 Full-time PhD Candidates (@200 Candidates per year) and 150 Part-time PhDs (@30 Candidates per year) in emerging research areas of ESDM and IT/ITES sectors over a period of 5 years.
- 2.2** The scheme will also identify and support 50 Young Faculty Research Fellowships (@10 awards/year) to recognize and encourage young faculty involved in research and technology development in the areas of ESDM and IT/ITES.
- 2.3** The scheme would support 225 Post-Doctoral Fellowships for candidates @ 25 seats per year for a period of support of one year to encourage specialized research in emerging research areas under ESDM and IT/ITES sectors. The support has been provisioned for a total of 9 years.
- 2.4** The scheme will have a provision for one time support to 250 Full time PhD fellows for 6 months to facilitate visits to labs abroad, to broaden their research perspective and be in-sync with the state of art research being carried out throughout the globe.

### 3. Institutions Eligible for Support

- 3.1** All Indian Institutes of Technology (IITs), National Institutes of Technology (NITs), Indian Institute of Science (IISc), all Indian Institutes of Science Education and Research (IISERs), Central Universities, Deemed Universities under Central Government, Colleges, and Institutions of national importance will be eligible for support under the scheme.
- 3.2** A University created under Provincial Act, State Act, State Universities, Private Universities, Private Deemed Universities, "Colleges that are allowed to offer PhD", and other academic, R&D institutions with the following eligibility criteria:
  - The Institute should have existing post graduate stream in Electronics/IT and have produced PhDs in these areas for the last 3 years. The PhD student(s) under this scheme to be admitted as per UGC admission norms and
  - The Institute should be recognized by AICTE & NBA (National Board of Accreditation) accredited with respect to Electronics/IT Programmes or The Institute should be accredited by NAAC (National Assessment and Accreditation Council of UGC).
- 3.3** The minimum requirement for eligibility under the scheme will be as per the norms specified by UGC. This will comply to "UGC's Minimum Standards & Procedures for award of M. Phil/Ph.D. Degree, Regulation, 2009" (ref. The Gazette of India July 11, 2009 Part III Sec 4) as amended time to time.

#### 4. Full-time PhD candidates (1000 candidates @200 candidates/year):

##### 4.1 Financial Support for Full-time PhD candidates:

- 4.1.1 Fellowship:** Rs. 38,750 per month in 1<sup>st</sup>& 2<sup>nd</sup> year and @Rs. 43,750 per month in 3<sup>rd</sup>,4<sup>th</sup> and 5<sup>th</sup> years of PhD. (support till PhD completion or 5 years whichever is earlier).
- 4.1.2 Reimbursement of Rent (RoR):** This component is linked with the fellowship of PhD Candidate. The rate of RoR is 24%, 16% & 8% (of fellowship) for X, Y & Z class cities/towns respectively. The classification of the cities is as per the notification issued by the Ministry of Finance for the reimbursement of HRA.
- 4.1.3 Institutional Overheads:** An amount of Rs. 25,000/Year/Full-time PhD candidate for support duration of PhD candidate to be given to the institution. The institutional overheads will be released after completion of required tenure by the respective candidate on pro-rata basis.
- 4.1.4 Research Contingency Grant Support:** An amount of Rs. 1,20,000/Year/Full-time PhD candidate for support duration of PhD candidate as per following guidelines:
- Out of Rs. 1.20 Lakh/ year, upto Rs. 30,000/- may be availed by the institute for respective PhD Candidate's miscellaneous expenses relevant to research work- e.g. Books / Documents, Equipment / Software, Consumables / Chemical / Electronic components, Prints of research papers, reports etc., Registration fee for attending Symposia/ Seminars / Conferences in India / abroad where the candidate is presenting an accepted paper, Similar items etc.
  - Proposal for Rs. 90,000/- or more upto Rs. 1.20 Lakh (the remaining amount after miscellaneous exp.) for lab equipment (excluding civil construction/expansion of the building) should be submitted to PhD Cell, DIC. It should be signed & stamped by the supervisor, nodal & head of the institute.
  - The amount of Rs. 1.20 Lakh under Research Contingency Grant support would be available to the institute only after completion of tenure of one year for a particular candidate and like-wise on pro-rata basis.
  - The proposal should clearly specify the utility & role of each of the proposed equipment in research of respective PhD candidate(s). The proposal would cover the item wise cost along with total budget and minimum amount required to place purchase order and amount required at the time of delivery of equipment to the institute.
  - The eligibility/unspent balance of a particular year for each Full-time PhD candidate may be carried forward to the next year, till the candidate is supported under the scheme (5 years/PhD completion etc.).
- 4.1.5 Support for attending International Conference:** The support would be available from 3<sup>rd</sup> year of PhD with following guidelines:
- The support would cover the travel and other expenses of PhD candidates for attending International conferences, where his/her research paper has been accepted for the presentation by him/her
  - Paper presentation should be oral (not poster) in an International conference falling in approved list under Visvesvaraya PhD Scheme (subject to revision/review by Academic Committee periodically). The approved list is uploaded on PhD Scheme portal [ListOfInternationalConferences.pdf](#)
  - A paper of expository nature (e.g. a review paper) will not be considered
  - Grant will not be used to attend winter or summer schools.
  - The application with invitation letter of the conference to be submitted to the PhD-Cell through the institution.

- f) The grant will be provided to the institution (not to the applicant) for checks & balances and submission of UC

**4.1.6 Visit to Labs abroad:** The support would be available to the selected Full Time PhD candidates with following guidelines:

- a) Visvesvaraya PhD Scheme has a provision of one-time support for all the enrolled Full Time scholars, from 3rd year, for 6 months 'Visit to Labs Abroad'.
- b) During the visit, the Monthly Fellowship will be Rs. 1.50 Lakh. Besides this, the Travel/Visa expenses up to Rs. 1.50 Lakh is provided. During this period, the domestic Fellowship and Reimbursement of Rent (RoR) will be suspended.
- c) The candidate should complete the visit at least 3 months before either the completion of PhD or the Fellowship support period of 5 years.
- d) The application with invitation letter is to be submitted to the PhD Cell through the institution.
- e) The funds for visit abroad will be provided to the institution.
- f) Upon completion of the visit and returning to the institution, the candidate must submit a detailed technical report about the work done /accomplishment along with publications resulting from the visit, if any, to the PhD Cell. The report should be signed by the guide and endorsed by the head of the institution.
- g) The applicant would be required to submit the following documents to PhD Cell for availing the support:
  - A valid offer letter from a lab abroad
  - Recommendation letter from the guide of the applicant
  - A copy of valid passport at the time of submission of application
  - Details of publications covering the bibliographical details arising from the research work of the applicant.
  - Copies of the publications for the research undertaken under the scheme.
  - The proposal will be examined by the Academic Committee with a physical interaction with the PhD candidate for the final recommendations.
- h) PhD Cell, DIC; MeitY reserves the right to hold/ stop/ terminate the support for this component at any stage, including but not limited to:
  - Appropriate progress is not being made.
  - The grant is not being utilized properly.
  - Violation/ Non-compliance of guidelines.
  - Any other reason, which is deemed appropriate by PhD Cell, DIC, MeitY

#### **4.2 Terms and Conditions for support of Full Time PhD Candidates**

**4.2.1** The support will be for additional PhD candidates taken up by an institution. No support would be provided for current levels of enrolment in the PhD programme at the institutions. Transfer from other scholarship schemes would not be permitted.

**4.2.2** Only the candidates enrolled/registered for PhD during the period of the scheme would be eligible to apply for the financial support. This scheme will be applicable for new PhD Scholars after notification of the scheme.

**4.2.3** The candidate would be eligible for Fellowship for the period during which the candidate is in good standing, and fulfills the requirements of the PhD successfully. The maximum period for which the support would be available for any Full-time candidate would be five years or till the completion of PhD whichever is earlier.

**4.2.4** The participating Institution will ensure that a candidate receiving fellowship under this scheme is not receiving any financial support for PhD from any other scheme of Government of India/States etc. at the same time, The candidates who have availed support for their PhD from any other scheme of

Government of India/States etc. will be automatically be disqualified for support under this scheme.

**4.2.5** The PhD seats allotted for a particular year should be utilized in the same academic year only. The unfilled seats would be automatically pulled back to the general pool of the scheme.

**4.2.6** The institutions, in the event of any drop-out, need to report it to PhD Cell/DIC immediately. The institutions cannot enroll a substitute candidate on their own. Only the cases which are found extraordinary would be considered for a substitute candidate's enrollment. For this consideration, the institution would require to submit adequate justification beyond the administrative checks and formalities. Any substitute enrolled by the institution without prior permission and due approval of PhD Cell, DIC would not be considered for support under the scheme. Once the institution has recommended the candidate for award of fellowship and the same has been approved under the scheme by the competent authority the fellowship amount and eligible "Reimbursement of Rent" amount will be transferred directly to the bank accounts of the PhD candidate through DBT. The institution will submit annual performance report for each candidate enrolled under the scheme. In case of non-performance of any candidate, the institution shall intimate PhD Cell, DIC regarding the same. In case no such intimation is received, PhD Cell, DIC will continue to transfer the fellowship directly to the bank accounts of PhD candidates.

**4.2.7** The items of expenditure eligible to be released to the institution like Institutional Overheads, Research Contingency Grant shall be released directly to the institution.

**4.2.8** The amount to be released under "Support for attending International Conference" and "Visit to labs abroad" will be released as per the requirement on a case to case basis.

**4.2.9** The institution will be responsible for furnishing utilization certificates of the funds released to them based on the scheme parameters, and as per conditions of the sanctioned grant-in-aid.

#### **5. Part-time PhD candidates(150 candidates): Fellowship @Rs. 3 Lakh on PhD Completion**

**5.1** Part-time PhD seats is provisioned for professionals working at a reputed place/organization

**5.2** The selected candidates should not be availing any PhD Fellowship/scholarship from any other scheme of Central or State Government.

**5.3** The seats would be allotted to the institutions based on the assessment of the proposals of the institute, research strength, and the working places of the prospective applicants.

**5.4** Past performance of the institutions in implementation of the scheme will also be considered while allocating the seats (wherein PhD Cell, DIC would provide the recommendation)

**5.5** Part-time candidates who do not avail of any PhD Fellowship/scholarship/stipend from any Central or State Government shall be provided a one-time incentive of Rs. 3 Lakh on successful completion of the PhD degree.

**5.6** Further guidelines if any will be provided subsequently.

#### **6. Young Faculty Research Fellowship (50 awards @10 awards/year):**

**6.1 Research Fellowship @ Rs. 20,000/Month, in addition to regular income/salary of the awardee.**

**6.2 Research Contingency Grant of Rs. 5 Lakh/Year**

**6.3** The applicant should be an Indian citizen.

**6.4** The applicant must have obtained PhD degree from a recognized University with first class (in terms of grades, etc.) in all preceding levels and a good academic record throughout.

**6.5** The applicant must have a regular position in the institute and should be engaged in research.

**6.6** The upper age limit for the fellowship is 40 years on the date of submission of application.

**6.7** YFRF under Visvesvaraya PhD Scheme can be availed only once by a candidate in his/her career.



- 6.8** Proposals for allotment of YFRF are to be submitted through eligible institutions only
- 6.9** Each institution in the proposal may submit up to three nominations for the award for each round of call for applications. The applicant must be an Indian citizen and possess a PhD degree in a relevant area.
- 6.10** The fellowship is tenable only in India and can be implemented in any of the recognized & eligible academic and R&D institution.
- 6.11** The fellowship is purely a temporary assignment, and is tenable for a maximum period of 05 years. The award will initially be for 2 years and further extendible, based on performance review.
- 6.12** Research Contingency Grant can be used for minor equipment, consumables and domestic travel. The host institution should provide necessary administrative and infrastructural support for YFRF.
- 6.13** The fellows are not eligible to receive any other fellowship from any Government or Non Government source during the tenure of the fellowship.
- 6.14** YFRFs are non-transferrable. The research work is to be carried out in the same eligible institution though which YFRF proposal was submitted.
- 6.15** Discontinuation of the Fellowship:
- The performance of YFRF would be reviewed periodically as per the discretion of PhD Cell, DIC; MeitY.
  - A detailed performance assessment/review of award would be conducted annually and decision on continuation of YFRF would be taken accordingly.
  - If any fellow wishes to discontinue the fellowship, the institution should inform Visvesvaraya PhD Scheme immediately. One month's notice is to be given to DIC through the institution before the date of discontinuation.
  - The implementing institution should not incur any expenditure from the date of termination of the project or the date of resignation of the fellow. The institution will ensure the submission of work report and other requisite documents from YFRF awardee.
  - PhD Cell, DIC; MeitY reserves the right to hold/ stop/ terminate the Fellowship at any stage because of reasons including, but not limited to the following:
    - a) Appropriate progress is not being made.
    - b) The grant is not being utilized properly.
    - c) Violation/ Non-compliance of guidelines.
    - d) Any other reason, which is deemed appropriate by PhD Cell, DIC, MeitY.

## **7. Post-Doctoral Fellowship (225 candidates' @25candidates/year):**

- 7.1 Research Fellowship @ Rs. 1.08 Lakh/Month**
- 7.2** Contingency- Rs. 1 Lakh for 1 year (on re-imburement and pro-rata basis depending on the period spent under the award). The claim would be submitted by the awardee through respective institution to PhD Cell in prescribed format.
- 7.3** Proposals for allotment of PDF seats are to be submitted by eligible institutions only. Suitable no. of seats would be allotted to institutions for further enrollment of PDF fellows on these seats following the scheme guidelines.
- 7.4** The PDF applicant should be an Indian citizen.
- 7.5** The PDF applicant must have obtained PhD degree from a recognized University with first class (in terms of grades, etc.) in all preceding levels and a good academic record throughout.
- 7.6** The eligible participating institution must ensure that the PDF applicant should have completed PhD within the past 5 years on the last date of submission of application to the institution.
- 7.7** The upper age limit for the fellowship is 40 years on the date of submission of application to the eligible participating institution.
- 7.8** A suitable Mentor/Guide under whom the proposed research would be carried out, must be identified by the institution.
- 7.9** Mentor/Guide of PDF fellow must hold a regular academic/research position in a recognized institution in India. He/she should hold a Ph.D. degree in Science or Engineering.
- 7.10** Preference would be given to the PDF applicants who have active industry linkages and their research proposal is directed towards industry specific problems.
- 7.11** The research proposal of the PDF applicant, to be submitted to the institution, should define clear objectives, outcomes and deliverables against the award.
- 7.12** PDF applicants currently in regular employment will not be considered. However, scientists or researchers with temporary positions in academia or research institutions would be considered however,

they would be required to relinquish their current roles if selected for the fellowship.

**7.13** PDF applicants should not have completed their PhD at the same institution where the PDF fellowship is to be awarded.

**7.14** Discontinuation of the Fellowship:

- If any fellow wishes to discontinue the fellowship, the institution should inform PhD Cell, DIC; MeitY immediately. One month's notice is to be given by the institution before the date of discontinuation.
- The implementing institution should not incur any expenditure from the date of termination of the award/project or the date of resignation of the fellow. The institution will be responsible for submission of work report and other requisite documents.
- In case the post-doctoral fellow undertakes any full/part-time assignment, his/her PDF award under the scheme would be discontinued.
- PhD Cell, DIC; MeitY reserves the right to hold/ stop/ discontinue the fellowship at any stage, if
  - a) Appropriate progress is not being made.
  - b) The grant is not being utilized properly.
  - c) Violation/ Non-compliance of guidelines.
  - d) Any other reason, which is deemed appropriate by PhD Cell, DIC, MeitY

## **8. Miscellaneous**

**8.1** Collaborations with internationally reputed academics and R&D Institutions will be encouraged.

**8.2** IPR generated under the Scheme will be governed by existing rules and regulations of MeitY.

**8.3** All institutions who will participate would be subjected to Audit of their accounts/records in respect of the scheme as per government norms.

**8.4** Assets created under the scheme using the research grant to the participating Institutions would be used by Institutions for the research and development activities in these institutions after the end of the scheme.

**8.5** MeitY may make additions/deletions/modifications in these guidelines at its own discretion.

**8.6** Awarding support, its continuation, discontinuation etc. for component(s) of the scheme would be as per the sole discretion of MeitY and would be final and binding to all the applicants seeking support/beneficiaries.

## SOP- Fund Release to Full Time PhD candidates and Institutions

S. No.	Components	SoP to be followed- for reference of the Institutions, PhD Candidates
1.	Monthly Fellowship for Full Time PhD (@Rs. 38750 for 1st& 2ndYear then Rs. 43750 for 3rd , 4th and 5th year)	<p>I. The institute based on administrative approval for PhD seat allotment would enrol the PhD Candidates on these seats following the guidelines of the scheme.</p> <p>II. The PhD Candidates would need to complete their profiles themselves on PhD scheme portal with due verification by the concerned department &amp; nodal officer of the institute. The institute will forward the candidate's detail along with recommendations for their fellowship release. This would be followed by verification by PhD Cell, DIC with respect to compliance to the guidelines of the scheme.</p> <p>III. Subsequent to the due verification of the registered PhD candidates, Fellowship &amp; RoR are transferred to the candidates' bank accounts regularly.</p> <p>IV. The institute would submit periodic performance report for each candidate. In case of non-performance, non-compliance with the scheme's guidelines, absence, leaves, etc. or other reasons, affecting the Fellowship amount or resulting into Fellowship stoppage of any candidate at any point of time, the institution shall intimate PhD Cell, DIC regarding the same immediately through email to PhD Cell. The institution needs to secure receipts of such intimation by PhD Cell, DIC well in advance as the fellowship would be released by DIC, as soon as possible, once the fellowship becomes due.</p> <p>V. In absence of such intimation, PhD Cell, DIC will continue to transfer the fellowship directly to the candidates every month of a financial year.</p> <p>VI. If due to non-intimation or late intimation by the respective institute, the fellowship is released to the candidate by PhD Cell, DIC then it will be the responsibility of the institute to recover that amount paid to the candidate in excess &amp; beyond eligibility. PhD Cell, DIC in its sole discretion may decide to recover it from the amount due to be paid to the institute under other budget heads of the scheme.</p>
2	Reimbursement of Rent (as per GoI norms)	<p>I. During verification of candidate's registration by the concerned department &amp; nodal officer of the institute along with their recommendation for Reimbursement of Rent release to PhD Candidates, the institute will recommend the release of amount towards "Reimbursement of Rent" also for the candidate. The institute would collect the supporting from the candidate &amp; follow all guidelines of the scheme and that of "Government of India" for such claims. PhD Cell, DIC will keep paying the "Reimbursement of Rent" along with fellowship to the eligible candidates every month.</p> <p>II. In the event of any change e.g. change in location by the Candidate leading to change in monthly rent amount or in-eligibility, the institution shall intimate PhD Cell, DIC</p>

		<p>regarding the same through email. The institution needs to secure receipts of such intimation by PhD Cell, DIC well in advance as the Reimbursement of Rent would be released by DIC, as soon as possible once Reimbursement of Rent becomes due. In absence of such intimation, PhD Cell, DIC will continue to transfer the “Reimbursement of Rent” directly to the candidates every month of a financial year.</p> <p>III. If due to non-intimation or late intimation by the respective institute, the “Reimbursement of Rent” is released to the candidate by PhD Cell, DIC then it will be the responsibility of the institute to recover that amount paid to the candidate in excess &amp; beyond eligibility. PhD Cell, DIC in its sole discretion may decide to recover it from the amount due to be paid to the institute under other budget heads of the scheme.</p>
3	<p>Research Contingency grant @ Rs. 1.20 Lakh/Year/Full Time PhD</p>	<p>I. The institution would submit a proposal based on the eligibility of the full time PhD candidate(s) in prescribed format. The format would include the details of equipment required by them, payment terms, account details of the institute etc.</p> <p>II. The proposal should clearly specify the utility &amp; role of each of the proposed equipment in research of respective PhD candidate(s).</p> <p>III. The Research Contingency Grant support would be available to the institute only after completion of tenure of one year for a particular candidate and like-wise on pro-rata basis.</p> <p>IV. The proposal would then be examined by PhD Cell, DIC with respect to the guidelines of the scheme &amp; then the institute to procure the equipment as mentioned in the proposal with certain changes if applicable.</p> <p>V. The institution following the same would procure the equipment and would raise the payment request as per payment terms to PhD Cell, DIC.</p>
4	<p>One Time International Conf. Support @ Rs. 1.5 Lakhs/Full Time PhD</p>	<p>I. The support would be provided once in a support duration of PhD candidate under the scheme.</p> <p>II. The support cover the travel and other expenses of PhD candidates for attending International conferences, where his/her research paper has been accepted for the presentation by him/her</p> <p>III. Paper presentation should be oral (not poster) in an International conference falling in approved list under Visvesvaraya PhD Scheme (subject to revision/review by Academic Committee periodically). The approved list is uploaded on PhD Scheme portal: <a href="#">ListOfInternationalConferences.pdf</a>.</p> <p>IV. The institution would submit the request based on the eligibility of the Full Time PhD candidate in the prescribed format along with invitation letter of the conference and other supporting documents to the PhD Cell.</p> <p>V. The grant will be provided to the institution (not to the applicant) for checks &amp; balances and submission of UC</p>

5	Institutional Overhead @ Rs. 25,000/Year/Full Time PhD	<p>I. Institutional overhead would be transferred to the institutions based on number of Full Time candidates enrolled under Visvesvaraya PhD Scheme and eligible for that year and like-wise on pro-rata basis.</p> <p>II. This amount after calculation at PhD Cell would be processed for release by PhD Cell for release to the respective institutions.</p>
6	One time support for 50 Candidates /yr from 3rd year for Visit to Labs	<p>I. It is not provisioned for all PhD candidates. Only the selected candidates fulfilling eligibility criteria based on the guidelines. A separate Implementation order governing these components would be issued by PhD Cell, DIC.</p> <p>II. The candidate should complete the visit at least 3 months before either the completion of PhD or the Fellowship support period of 5 years.</p> <p>III. The application with invitation letter is to be submitted to the PhD Cell through the institution.</p> <p>IV. The funds including Fellowship of the selected Full Time candidates for visit to labs abroad will be provided to the institution.</p> <p>V. Upon completion of the visit and returning to the institution, the candidate must submit a detailed technical report about the work done /accomplishment along with publications resulting from the visit, if any, to the PhD Cell. The report should be signed by the guide and endorsed by the head of the institution.</p> <p>VI. PhD Cell, DIC; MeitY reserves the right to hold/ stop/ terminate the support for this component at any stage, including but not limited to:</p> <p>(a) Appropriate progress is not being made.</p> <p>(b) The grant is not being utilized properly.</p> <p>(c) Violation/ Non-compliance of guidelines.</p> <p>(d) Any other reason, which is deemed appropriate by PhD Cell, DIC, MeitY</p>

## Standard Operating Procedure (SoP) for Part Time PhD candidates and Institutions

1. The institution is required to ensure the registration of selected Part Time PhD candidate(s) on PhD scheme portal without any fail. Any Part Time PhD candidate who is not registered under the scheme will not be eligible for support.
2. The institution is required to ensure timely submission of periodic reports of the progress of the Part Time PhD candidate(s) to PhD Cell, Digital India Corporation (DIC), MeitY, whenever sought. The Part Time PhD candidates would be required to submit other report(s)/details w.r.t. their research work in specific format, whenever sought by PhD Cell, DIC, MeitY.
3. The Part Time PhD candidate is required to update the details of publications/patents/start-ups etc. generated during his/her Part Time tenure on PhD Scheme portal.
4. The candidate(s) and the institutions are required to comply with the guidelines of the scheme and periodic directions of PhD Cell, DIC, MeitY.
5. The institution is required to immediately inform PhD Cell, DIC, about any drop outs/termination of Part Time PhD candidate(s) registered under the scheme.
6. There is no provision for admitting any substitute candidate in place of dropped out or terminated Part Time PhD candidate(s).
7. The selected Part Time PhD candidates should not be availing any PhD Fellowship/scholarship from any other scheme of Central or State Government. Those who avail such Fellowship/scholarship/stipend from any Central or State Government are not eligible for support on completion of PhD.
8. The institution is required to submit the following documents on completion of PhD;
  - Copy of 'PhD Degree/ Provisional Certificate'
  - Copy of 'Thesis'
  - Copy of 'Relieving Letter from the institution',
  - Request for transfer of 'One Time Incentive' to the bank account of Part Time PhD candidate(s) and other details in the prescribed format duly signed by the Head and the Nodal Officer of the institution. The format for the same would be shared by PhD Cell, DIC, MeitY.
9. On receipt of the required documents and completion of required formalities, 'One Time Incentive' of Rs. 3.00 Lakhs would be transferred by PhD Cell, DIC, MeitY directly in the bank account of Part Time PhD candidate(s).
10. PhD Cell, DIC, MeitY reserves the right to hold/ stop/ terminate the support for this component at any stage, including but not limited to:
  - Appropriate progress is not being made.
  - Violation/ Non-compliance of guidelines.
  - Any other reason, which is deemed appropriate by PhD Cell, DIC, MeitY



# Sardar Vallabhbhai National Institute of Technology, (SVNIT) Surat

## INFORMATION BROCHURE

for admission to  
**Ph.D. Programme**  
(July 2025)

Quick Links



Institute website: [www.svnit.ac.in](http://www.svnit.ac.in)



SARDAR VALLABHBHAI NATIONAL  
INSTITUTE OF TECHNOLOGY  
SURAT

[www.svnit.ac.in](http://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 4<sup>th</sup> 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 M. Tech (R) 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**

**250+ faculties with excellence in Academics & Research**

**200+ state of the art research laboratories**

**8000+ SCI/Scopus publications with 80,000+ citations**

**300+ Sponsored research projects**

**2500+ Consultancy projects**

**Seven faculties featured in the list of “Single Year 2022 citation impact”**

**218 research equipment shared on I-STEM portal**

**40+ National/ International MoU with Industries & Academia**

**National/ International collaborations for various student exchange programs**

**Centre of Excellences coming up**

## 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) Common 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 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. 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 has obtained a CGPA of 8.0 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) Once a student changes to Ph.D. Programme, thereafter, he/she is governed by the Regulations of the Ph.D. Programme of the Institute.
  - (b) The candidate may be asked to earn minimum 20 credits additionally through course work as per the requirement of the doctoral program and after successful completion of the requirement of Ph.D., he/she should be given a dual M.Tech. and Ph.D. degrees.
4. Candidate who has qualified for the award of Bachelor's degree in Engineering / Technology from an Institute of National Importance including Centrally funded technical institutions of repute / State Government funded institutes / Institutes affiliated to state universities with exceptionally good academic record in prescribed discipline will also be considered for direct admission to Ph.D. Programme subject to the following conditions:
  - (a) The candidate should have 8.00 CGPA on 10-point scale in his/her B.E./B.Tech. Programme. If the degree is based on percentage aggregate marks, it will be converted into CGPA as per the rule of this institute.
  - (b) The candidate should have a valid GATE score.
  - (c) The final selection will be through the regular selection process of the institute.
  - (d) The candidate should earn 40 credits within the first TWO semesters of his/her program through the theory/practical coursework after joining the program.

5. 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) Bachelor's degree in Engineering / Technology from an Institute of National Importance including Centrally funded technical institutions of repute / State Government funded institutes / Institutes affiliated to state universities in prescribed discipline will be considered for direct admission to Ph.D. Program.
  - (b) The candidate should have 6.5 CGPA on 10-point scale or 60% in his/her B.E./B.Tech. Programme along with mandatory 8 years of work experience at PSUs, R&D organizations, well-equipped scientific institutions, laboratories, and industrial organizations engaged in research-based activities.
  - (c) The candidate should earn 40 credits within the first TWO semesters of his/her program through coursework after joining the program. However, if the candidate has the experience of 15 Years, he/she has to complete the 16 Credits as a coursework.
  - (d) 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 Programmes:

- (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.
- (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: External Research Scholar** candidates are self-sponsored or sponsored by Government / Semi-Government / Non-Government / Private organizations/institutes on full-time or part-time basis who are **not entitled for any scholarship / stipend or contingency grants from the institute or sponsored research project funds sanctioned to the institute**. Candidates who are full-time self-sponsored or full-time sponsored on study leave by the Government / Semi-Government / Non-Government / Private organizations/institutes are expected to work full-time and are subject to the rules of the Institute. SVNIT institute own staff / faculty members who want to pursue Ph.D. can apply under this category.

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 relieving 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.
- (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 or FPS 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 are allowed to carry out their research work at the Institute or at their parent organization after fulfilling certain pre-requisites at the Institute.
- iii. 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
  - 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.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 and seminar 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) The Ph.D Scholarship/Fellowship/ Assistantship will be offered for a maximum of five years in the case of full-time institute research scholars. 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 and credit seminar for the continuity of the Ph.D. programme and thereafter the confirmation of registration shall be done.
- (e) Students admitted after the first year of their M Tech Programs from SVNIT, are required to earn 20 credits during the first two semesters. For directly admitted students after B.E./ B.Tech. or equivalent degree, the candidate should earn 40 credits within first TWO semesters of his/her programme through the theory/practical course work after joining the programme.

**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 applicants and registered 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, Pharmaceuticals, 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, Porous 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:**

MBA (Master of Business Administration) / MMS (Master of Management Studies) / MHRD (Master of Human Resource Development) / MPA (Master of Public Administration)/ PG Degree or Diploma in Management equivalent to MBA / M.Com. / CS / CA.



**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.

## C) Student Amenities

**C.1) Hostel:** Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat is residential institute and Hostel section of the institute is established to deal with all the matters related to accommodation, food and general wellbeing of the students. Presently, the Institute Campus has 09 hostels which include 07 boys' hostels and 02 girls' hostels. The activities of hostels are managed by the Council of Wardens (CoW) and Hostel Management Committees (HMC) of the students. Council of Warden includes the Chief Warden and Wardens of the hostels with Co-Chairman as the Associate Dean (Students Welfare) and Chairman as Dean (Students Welfare). All the hostels are equipped with basic facilities like furniture, Wi-Fi/LAN enabled internet, Mess, and recreational facilities like fully equipped sports facilities, music rooms, magazine rooms and television rooms. Most hostel-level meetings take place in common rooms. All on-roll students are covered under the Medical Insurance scheme for inpatient treatment. The insurance covers hospitalization expenses of up to Rs. 50, 000/-. Students get cover from Day One with cashless hospitalization facilities in-network hospitals of Insurance companies.



**C.2) Computing, Internet and Intranet:** The Central Computer Centre (CCC) primarily caters to the Internet Access requirements throughout the institute and Campus-wide network connectivity throughout the campus, including academic & administration departments, hostels, staff quarters, guest house, etc. User Account and Bandwidth are managed with the help of firewall. The institute is the participant of MoE, Government of India NMEICT/NKN project through which connectivity of 1 Gbps is functioning. The internet access to the institute is also available from various vendors, who provides 250 Mbps internet bandwidth each amounting to a total of 1.25 Gbps. Thus, total bandwidth of the Institute is amounting to a total of 2.25 Gbps. The Central Computer Centre has Blade Server with 14 TB of Storage space and 6 Blades on which variety of different purpose servers like WEB Server, DNS, NIS Server, FTP Server, DHCP Server, etc. are hosted. Most of the dialects of the



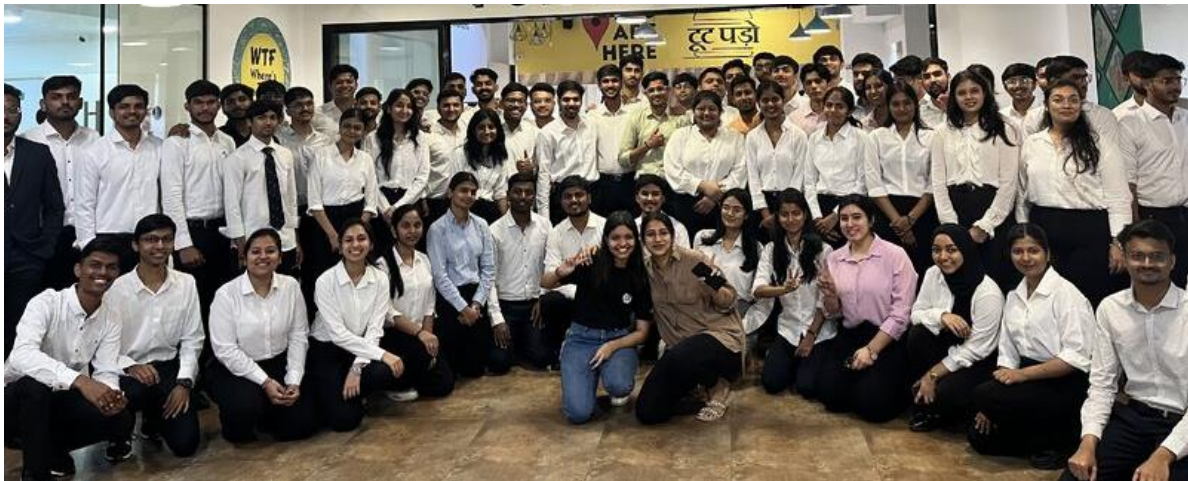
operating systems, authorized copies of almost all the common shrink-wrapped software and various Engineering application software's are housed in the laboratories. Superb computing facilities and the abundance of all types of latest software's are added to the glamour and grandeur of this centre.



**C.3) Sports/Indoor Games and Gym:** Student Activities Center (SAC) of the institute organizes and manages sports, co-curricular and extracurricular activities of students and staffs. It has adequate sport facilities like Badminton courts with standard size of synthetic flooring, proper light and ventilation, two International standard synthetic Tennis courts with class-3 flood lights and modern seating arrangement for the spectators, two Volleyball grounds with standard quality grounds with flood lights, two Basketball courts facility with standard size of concrete flooring, proper light, Pool Table, Table Tennis and football ground. In addition to above, the institute has a Gymnasium Hall equipped with varieties of equipment's i.e more than 15 stations for specific body part exercise. Further, the SAC provides coaching camps for various games like Athletics, Badminton, Basketball, Cricket, Football, Handball, Kho-Kho, Kabaddi, Swimming and Yoga etc.



**C.4) Career Development Cell (CDC):** Institute has full-fledged Training & Placement Section (T&P) under the Professor In-charge Training & Placement. It helps the student's community to get the proper placement in various public and private sector organizations by arranging the campus interviews. The placement of final year students starts at the beginning of the academic year. Further, to strengthen the Industry-Institute interaction, CDC section encourages the companies for an internship to B. Tech. 3rd year students (maximum 8 weeks in summer vacation) and to M. Tech. students (maximum 1 year) in their 2nd year as a dissertation work. Please visit : <https://www.svnit.ac.in/web/t&p/about.php>



**C.5) Industry and Alumni Relations:** The institute is having its alumni association, which takes an active interest in the growth of the institute. The institute has signed several MoUs with industries such as Reliance, L&T, Essar, Altair, Patni and various Technical Institutions and, Universities in India and abroad. The SVNIT Surat is having wide network of its alumni across the globe. The alumni of the institute are placed at the high rank in the government, semi-government and private institutions serving the country whole heartedly. The networking of students with alumni be carried out through the office of Dean (Alumni and Resources Generation) and office SVNIT Surat Alumni Association situated within the campus of the institute. The networking of the SVNIT Surat Alumni is through Alma Connect. The alumni of institute support the various academic, research, sports and placement activities of the institute apart from financially helping the needy students. The alumni association organizes the annual convention of alumni of institute every year which is one of the most awaited events.





**C.6) Recreational/Extra Curricular activities:** Apart from academics, the institute takes due care of the overall development of students through extracurricular activities like “KASHISH” the welcome program for first-year students. A three-day cultural event “SPARSH” is one of the most cherished activities of the students. A technical event like “MINDBEND” along with activities of various student chapters/clubs such as Association for Computing Machinery (ACM), Centre for Humanity Resource Development (CHRD), Chemical Engineering Society (CHES), Civil Engineering Society (CES), Cutting Edge Visionaries (CEV), DRISHTI, Electrical Engineering Society (EES), Indian Institute of Welding (IIW), Indian Institution of Industrial Engineering (IIIE), Indian Society for Technical Education Society (ISTE), Institute of Electrical and Electronics Engineers (IEEE), Institution of Engineers (IE), Literary Affairs Committee (LAC), NIRVANA- a programme of social engineering, RENESA, Society for Cultivation of Science & Humanities (SCOSH), Society of Automotive Engineers (SAE), SPIC-MACAY (Society for the Promotion of Indian Classical Music And Culture Amongst Youth), The Institution of Electronics & Telecommunication Engineers (IETE) etc. are organized throughout a year to keep a student involved in co-curricular activities.



**C.7) Health Centre:** The Health Centre of SVNIT is established to ensure adequate & qualitative healthcare facilities for all the students, faculties, and staff with their family members at SVNIT. The Health Centre is managed by full-time residential doctor and Medical Officers on a contractual basis. Five (5) Hon. Visiting Medical Consultants, namely Physician, Gynecologist, Radiologist, Ayurveda, and Homeopathy specialists, provide medical services at the extension of the Health Centre at CAD Lab Building and the adolescent Health Clinic in Mother Terasa Bhavan (Girls Hostel). 108 ambulance services are available for the campus residents and are provided at the designated appropriate place on campus.

**C.8) Central Library:** The institute has a library of world-class standards with an area of 17070 square meters. It contains 97810 print books, 23 print Journals, 11265 e-books, 4035 e-journals, and 5455 e-journals through eSS consortia. The library maintains various Databases and Standards (Online) like IEEE/IET Electronic Library, McGraw Hill Access Engineering Online Database, ASME Standards (Except BPVC), Indian Standards, International Electro-Technical Commission (IEC) Standards, ASTM Standards, American Welding Society Standards, etc. The institute subscribes to several research support tools, including Turnitin (plagiarism detection online software), Grammarly Premium, SCOPUS Database, SciFinder-n, and Web of Science Lease Access. Central Library also subscribes to the GATE preparation

platform for all Engineering disciplines. The Central Library is a member of e-Sodh Sindhu: Consortia for Higher Education E-Resources. The library is also a member of the Developing Library Network (DELNET), New Delhi.



**Location and Accessibility:** Surat is one of the central nodes on the Bombay-Delhi (National Highway 8) and is connected to the country by Road, Rail, and Air. SVNIT, Surat is located in the city's prime area, locally known as Ichchhanath, at about 10 KMs from the Surat Railway Station. It is on the way to a small seaside region known as Dumas, from the railway station. The city buses regularly operate from early morning till midnight, between Surat Railway Station and College Campus/Piplod. Other than the city bus, auto-rickshaws (more commonly) or taxis are also available. Surat also has International Airport at Magdalla-Dumas Road, approximately 10 KM from the institute campus. The operating airlines connect Surat to Chennai, Bangalore, Bhubaneswar, Delhi, Hyderabad, Goa, Kolkata, Jaipur, Mumbai, and Patna with return flights regularly flies from these locations.

**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**

**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 of Technology,  
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)