



INFORMATION BROCHURE

Academic Session: 2024-2025 (Jan-May Semester)

Ph.D. Programmes (Full-Time/Part-Time)



NORTH EASTERN REGIONAL INSTITUTE OF SCIENCE & TECHNOLOGY
[Deemed-to-be-University, under Section 3 of the UGC Act, 1956]
[Under the Ministry of Education, Govt. of India, New Delhi]
Arunachal Pradesh , Nirjuli – 791 109

Last date for submission of applications (offline) with the requisite application fee	Thursday, November 28, 2024
Issue of Admit Cards	Wednesday, December 4, 2024
Date of Written Test	Monday, December 16, 2024
Publication of the list of eligible candidates for Interview for admission to the Ph.D. programmes	Monday, December 16, 2024 [List will be displayed on the Institute website]
Date of Interview of eligible candidates for admission to the Ph.D. programmes	Tuesday, December 17, 2024 Venue: Respective Departments/Centre
Date of the declaration of the results	Monday, December 23, 2024 [Results will be displayed on the Institute website]

1. About the Institute

The North Eastern Regional Institute of Science and Technology (NERIST) was set up by the Government of India, initially as a project of the North Eastern Council, for providing a system of education to create technical manpower at various levels for the development of the North Eastern Region of the country. The foundation stone of the Institute was laid by late Giani Zail Singh, the then President of India, on 4th March, 1984, and the first batch of students was admitted to the Base Module in August, 1986, and subsequently, to Diploma and Degree Module. In addition to the undergraduate programmes, the Institute also offers M.Sc., M.Tech., MBA (Full-Time), and Ph.D. (both Full-Time and Part-Time) programmes.

The Institute attained the status of a Deemed-to-be-University under section 3 of the UGC Act, 1956, vide Notification No. F.9-15/2005-U.3, dated 31st May 2005 by Ministry of Education (formerly, the Ministry of Human Resource Development), Government of India.

For detailed information about the Institute, please visit <https://nerist.ac.in>.

2. Vision and Mission of the Institute

Vision

To produce professionals with competency for pursuing excellence in Science and Technology Education, Research, and Entrepreneurship with ethical values and social sensitivity for offering specialized services to the society meeting the global requirements and standards in a multicultural environment.

Mission

- 1) Creating a niche in the field of science and technology education and research through an innovative modular system.

- 2) Producing globally competitive technical and scientific manpower in different disciplines with high ethical values, with particular reference to the North Eastern region.
- 3) Introducing in engineers/technologist and trainees a mind-set full of creativity to pursue excellence with focus on stakeholders, accountability, environment and people.
- 4) Developing collaborations with world class R&D organizations, industries and educational institutions in India and abroad for attaining excellence in teaching, research, and consultancy practices.

3. Eligibility Criteria for Ph.D. Admission :

PROGRAMME	ELIGIBILITY CRITERIA	REMARKS
Doctor of Philosophy (Ph.D.) (Full-Time and Part-Time/Sponsored)	Candidates having Master's Degree in Engineering and Technology with 60% marks in aggregate or CGPA of 6.5 on 10-point scale and 55% marks in aggregate in Sciences/Humanities and Social Sciences/Management for the General category.	(i) Applicants, who wish to pursue Ph.D. while in employment/service, need to submit an NoC (vide Annexure-I) from their respective employers stating that s/he will be relieved for the study during the period of the programme, at the time of Admission. (ii) Sponsoring Certificate from the employer (vide Annexure – II), stating that period of study will be treated as on-duty with usual salary/allowances and s/he will be relieved during the period of study. Other rules and regulations will be governed by the UGC/AICTE from time to time.

*A relaxation of 5% will be given to the candidates belonging to SC/ST/PwD categories.

4. How to Apply for Ph.D. programmes:

Candidates may apply (offline) on the Format given by remitting a non-refundable and non-transferable application fee of ₹1500.00 (One thousand and five hundred) only in the form of Demand Draft drawn in favour of Director, NERIST and payable at SBI NERIST (Branch Code 18744) , NERIST , Arunachal Pradesh and should reach the Dean (Academic), NERIST, Nirjuli, PIN -791 109, Arunachal Pradesh by Registered/Speed Post only, latest by Thursday, November 28, 2024 till 5:00 PM.

Guidelines for filling the Offline Application Form:

- 1) Attested copy of NET/GATE/CAT/MAT/SLET/NET Lecturer Fellowship score card/ certificate along with the educational qualifications and Passport size photographs 2(two nos) should be attached with application form.
- 2) Attested copy of ST/SC/OBC (NCL)/EWS/PH. The OBC(NCL)/EWS should have the validity of one year at the time of admission.

Important Notes for all applicants

Original certificates issued by the Competent Authority supporting your filled-in details will be asked from you ONLY at the time of verification of documents/counselling-cum-admission. If the data provided in the application are not supported by appropriate documents, then your application/claim for admission shall be summarily rejected.

5. Departments

The Institute has eleven Academic Departments and one Centre. All the Departments have PG and Ph.D. programmes except for the Department of Humanities and Social Sciences (HSS), which offers only Ph.D. programme. The Centre for Management Studies (CMS) offers two-year full time MBA and Ph.D. programmes.

The details about each Department and the Centre can be accessed through the respective URLs given below:

A Departments :

Sl. No.	NAME OF THE DEPARTMENT	URL OF THE DEPARTMENT
1.	Agricultural Engineering (AE)	https://www.nerist.ac.in/agriculture
2.	Civil Engineering (CE)	https://www.nerist.ac.in/civil
3.	Computer Science & Engineering (CSE)	https://www.nerist.ac.in/computer-science
4.	Electronics & Communication Engineering (ECE)	https://www.nerist.ac.in/electronics
5.	Electrical Engineering (EE)	https://www.nerist.ac.in/electrical
6.	Mechanical Engineering (ME)	https://www.nerist.ac.in/mechanical
7.	Forestry (FO)	https://www.nerist.ac.in/forestry
8.	Chemistry (CY)	https://www.nerist.ac.in/chemistry
9.	Mathematics (MA)	https://www.nerist.ac.in/mathematics
10.	Physics (PH)	https://www.nerist.ac.in/physics
11.	Humanities & Social Sciences (HSS)	https://www.nerist.ac.in/humanities

B Centre

Sl. No.	NAME OF THE CENTRE	URL OF THE DEPARTMENT
1.	Centre for Management Studies	https://www.nerist.ac.in/cms

C. Department/Centre wise number of seats available & Area(s) of research for Ph.D. admission :

Sl. No.	Department	No. of available seats	Areas of Research
1.	Agricultural Engineering	08	Ergonomics, Accident and injury prevention, Occupational health, AI in machinery design, Farm Machinery & Power, Impact of Climate Change on Water Resources, Hydrological modelling, Cryosphere mapping/ modelling, Hydro-informatics, Climate Change vulnerability and impact studies, Ground water- surface water interaction, Remote sensing application in water resources Engineering
2.	Civil Engineering	15	Environmental Engineering, Water Resource Engineering, Geotechnical Engineering, Earthquake Engineering, Transportation Engineering, Traffic Engineering
3.	Computer Science & Engineering	22	Wireless Sensor Networks, Computer Vision and Pattern Recognition, AI/ML/DL, Data mining, MANet, Network Security & Reliability, Information Security, Image and Video Processing, Cognitive Radio Networks, Mobile Ad-Hoc Networks
4.	Electronics & Communication Engineering	28	Communication Engineering, Sensors and Circuits, Low power Mixed signal Circuits and Systems Design, Wireless Communication, Massive MIMO, IoT, ML, Biomedical Signal Processing, Image Processing and AI in health care solutions, Semiconductor Devices, Bio-Sensors, VLSI circuit and Digital Design, III-V Semiconductor, Microelectronics
5.	Electrical Engineering	16	Control Systems, Missile Technology, Illumination Engineering, Microprocessor Control & Instrumentation, Power System Reliability, Electrical Machines and Drives, Distributed Power Resources, Power & Energy, Power Electronics, Drives & Control, Power system, & High Voltage Technology, Power System Stability, Renewable Energy and Distributed Generation, Microgrid and Smart Grid System.
6.	Mechanical Engineering	25	Heat Transfer and Fluid Mechanics, Conventional/Non-conventional machining, Additive manufacturing, Soft computing, Modelling and Optimization of machining processes, Mechanical Vibration, Robotics, CAD/CAM, Composite materials & Operation research, Machine Design, Tribology of bearings, materials, Heat transfer, Rotor dynamics, Optimization Technique for manufacturing, 3D printing, IC Engines and Biomass energy studies, Automation, Computational welding, WAAM, Industry 4.0
7.	Chemistry	06	Electrochemical studies and applications of organometallic compounds, Electrochemistry, atmospheric chemistry and climate change, Synthetic Organic Chemistry
8.	Physics	25	Spectroscopy, Energy Physics, Chemical Physics, Microwave Electronics, Theoretical High Energy Physics, Theoretical Condensed Matter Physics, Experimental Condensed Matter Physics
9.	Humanities & Social Sciences	07	Communication Theory and New Media

6. Selection Procedure

Institute shall admit Ph.D. students through an Entrance Test. The selection procedure is as follows:

- 1) A candidate with valid GATE score/NET including JRF (UGC/CSIR/ICAR) will be exempted from entrance examination for admission in Ph.D. However, they have to mandatorily appear in the interview conducted by the respective Departments/Centre.
- 2) The written examination shall be conducted for all those candidates who are not exempted from the written test.
- 3) There will be a single question paper for each Department/Centre with 100 multiple-choice questions of one mark each. There will be two sections in the question paper. **The Section-A will be of 50 marks from Research Methodology, which is common for all the Engineering, Sciences, Humanities & Social Sciences Departments and the Centre for Management Studies. The questions in Section-B will be from the respective Departments/Centre for 50 marks.** For the syllabi of Ph.D. Entrance Test, please refer to **Annexure – IV**.
- 4) The cut-off to qualify the written test will be 50 marks including both the sections A and B. A relaxation of 5% marks will be allowed in the entrance examination for the candidates belonging to SC/ST/OBC (NCL)/Differently-abled/EWS categories.
- 5) **The selection will be based on a weightage of 70% for the written test and 30% for the performance in the interview.**
- 6) Interview will be conducted by the respective Departments/Centre considering the following aspects:
 - a) The candidate possesses the competence for the proposed research work.
 - b) The research area can be suitably undertaken at the institute level.
 - c) The proposed area of research can contribute to new/additional knowledge.

No separate letter will be sent for the written test and interview.

The selected list of the candidates will be displayed on the Institute website <https://nerist.ac.in>.

Any query in this regard may be made at the following Email ID : deanacad@nerist.ac.in and following telephone numbers of NERIST EPBX: (0360) 2257401 to 11 Extn: 7268/7269; Fax No. (0360) 2258533/2257470.

7. Admission Procedure for Ph.D. programme

- 1) The selected and wait listed candidates will be required to report to the Academic Section of the Institute on the specified date for counselling-cum-admission and registration.
- 2) The dates & time of **counselling-cum-admission and course registration of selected and waitlisted candidates of Ph.D. shall be notified in due course of time.**
- 3) Candidates must produce the relevant certificates and mark sheets of all examinations in original for verification at the time of counselling-cum-admission.
- 4) Admission will be allowed subject to production of Medical Fitness Certificate and verification of all certificates and mark sheets.

Important Note: Any deviation from the stated documentary proof for the chosen reservation criteria mentioned in his/her application shall lead to rejection of his/her candidature. Proof of eligibility against a reservation category, other than All India General category candidates, must be produced at the time of counselling/admission.

8. Fee Structure

Please refer to the Institute web site, <https://nerist.ac.in> for detailed fee structure.

9. Anti-Ragging Undertaking mandatory for all students

Ragging is banned in the Institute. Anyone, who is found indulging in ragging, directly or indirectly, during the entire period of his/her study, will be punished as per the Institute rules.

Further, students must fill the Anti-ragging Undertaking on either of the following websites www.amanmovement.org or www.antiragging.in and the **hard copy of the Undertaking, as received by email, should be submitted to the Institute at the time of admission and also at the time of semester registration during July every year.**

10. Scholarship for Ph.D. students

12.2 Ph.D. students

The Institute provides fellowships to all the full-time Ph.D. scholars who have qualified GATE/NET. Institute fellowships are available for candidates who do not have GATE/NET scores as per the institute norms. They may also apply for several other fellowships, including NFST, INSPIRE, UGC-NET JRF, CSIR-NET JRF, based on their eligibility.

11. Leave for Ph.D. (Full-Time)

Grant of leave during the Ph.D. programme is subject to the provisions of the Academic Bye-Laws (Master and Ph.D. Programmes) and other regulations as amended from time to time.

12. Hostel facility

Hostel accommodation to the students of Ph.D. Programmes (FT) will be provided in the institute subject to the availability of seats in the hostel.

13. Ban on Picnic

Due to the regrettable incidents in the past wherein students lost their lives during river-side picnics, the Institute has imposed a complete ban on picnics organised by the students. This decision is taken to ensure the safety and well-being of the students.

Format of No-Objection Certificate for Ph.D. (Full Time/Part time) program for employed persons

(This should be typed on the letter head of the sponsoring organization)

Reference No. _____

Date: _____

To

The Director
NERIST
Nirjuli – 791 109
Arunachal Pradesh

Sub: No objection certificate

Sir/Madam,

It is hereby certified that Mr./Ms. _____ has been working in this organization as _____.

This organization has no objection to his/her being admitted to the Ph.D. programme at NERIST, Nirjuli, from the session starting from _____ as a Full Time/Part Time student.

Date:

Place:

Signature:

Name:

Designation:

Seal and Signature of sponsoring authority.

**Format of Sponsorship Certificate for Ph.D. program for employed persons
(This should be typed on the letter head of the sponsoring organization)**

Reference No. _____

Date: _____

To

The Director
NERIST
Nirjuli – 791 109
Arunachal Pradesh

Sub: Sponsorship Certificate.

Sir/Madam,

Mr./Ms. _____ who has been working in this organization as _____ is hereby sponsored for admission into the Ph.D. programme at NERIST, from the session starting on _____ as a full time student.

The employee will be relieved from his/her duties in the organization to join the Ph.D. programme of NERIST.

Date:

Place:

Signature:

Name:

Designation:

Seal and Signature of sponsoring authority.

**Format for No-Objection Certificate from Principal Investigator for project fellows
(This should be typed on the letter head of the sponsoring organization)**

Reference No. _____

Date: _____

To

The Director
NERIST
Nirjuli – 791 109
Arunachal Pradesh

Sub: No objection certificate.

Sir/Madam,

Certified that Mr./Ms. _____, is working as a _____ in the project (title of the Project) _____ in the Department/Centre _____ funded by _____ since _____. I have no objection in allowing him/her to join the Ph.D. programme at NERIST under the category of project staff.

Further, he/she will be allowed to carry out his/her course work/research work of the Ph.D. programme without hampering the project work.

Date:
Place:

Signature:
Name:
Designation:

Seal and Signature of sponsoring authority.

SYLLABI FOR Ph.D. ENTRANCE TEST

SECTION A: RESEARCH METHODOLOGY (For all subjects under Science/Engineering/Humanities/Social Sciences/Management)	
Unit-I	Research problem; Research objectives; Research methods, Types of research: Descriptive, Analytical, Applied, Fundamental, Quantitative, Qualitative, Conceptual and Empirical.
Unit-II	Literature review: primary, secondary, e-resources, database sources; Formulation of Hypotheses; Defining and formulating the research problems.
Unit-III	Research design and methods: Randomize block design, Complete randomize design and Latin square design; Developing a research plan; Determining experimental and sample designs; Sampling error.
Unit-IV	Data Collection and analysis; Data Analysis with Statistical Packages - Hypothesis-testing - Generalization and Interpretation; Computer Processing.
Unit-V	Statistical Analysis: Introduction to Statistics – Probability Theories – Conditional Probability, Poisson Distribution, Binomial Distribution and Properties of Normal Distributions – Hypothesis Tests – One Sample Test – Two Sample Tests/Chi-Square Test, Association of Attributes - Standard Deviation – Co-Efficient of Variations. Statistical Applications – Correlation and Regression Analysis – Analysis of Variance – Partial and Multiple Correlation.
Unit-VI	Reporting and thesis writing; Types of report; Report writing; Bibliography; Referencing; Presentation; Importance of effective communication; Copy right; Intellectual Property Right and Patent Law; Plagiarism.
SECTION B: (Syllabus of National Level Tests like GATE/NET/CAT/MAT etc. for their respective branch subjects)	



NORTH EASTERN REGIONAL INSTITUTE OF SCIENCE & TECHNOLOGY

[Under the Ministry of Education, New Delhi]
[Deemed to be University u/s 3 of the UGC Act, 1956]
Nirjuli 791109:: Arunachal Pradesh

ANTI-DRUG DECLARATION FORM TO BE SIGNED BY THE STUDENT

I (name) son/ daughter/ ward of Mr./Mrs./Ms.(name) admitted to (course & year in **North Eastern Regional Institute of Science & Technology (NERIST), Itanagar** during the year **2024-25**, hereby agree to the following terms:

- 1) **I am aware that the possession, use, sale and distribution of alcohol/tobacco/any psychoactive substances are wrong and harmful.**
- 2) I shall refrain from using, being under the influence of, possessing, furnishing, distributing, selling or conspiring to sell or possess, or being in the chain of sale or distribution of alcohol/tobacco/any psychoactive substances within the premises of the institute/university or during any sponsored activities by the institute/university.
- 3) I shall report to the authorities of the institution any irregular behaviour that I observe in relation to the possession, use, sale and distribution of alcohol/tobacco/any psychoactive substances which may have occurred at the institution or during any activities Conducted by any students or institution.
- 4) I shall support and actively participate in any substance use prevention education programmes which may be organized by the institution/government which would enable me to be a better student and citizen of India.
- 5) I shall co-operate with the authorities of the institution and other relevant authorities in their investigation of any substance-related incident of which I may have information, and to prevent the possession, use, sale and distribution of any psychoactive substances in or around my Institution.

()

Full signature of the candidate

Name:

Regn No :

Mobile No.:

()
Countersignature of parents/ Guardian with date
Name:
Mobile No.:

To be obtained only from a Gazetted Government Medical Officer/Medical Officer of a Government Undertaking.

N.B.: Please note that the certificate in no other form will be accepted. Medical Certificate issued by a private medical practitioner will not be accepted.

1. Name (In Block letters) : _____
2. Father's Name : _____
3. Date of Birth : _____
4. Date of Medical Examination : _____ Blood Group : _____
4. Personal Identification Marks : _____

5. Height : _____ cms., Weight.: _____ Kgs. Chest : Exp./Insp. _____ cms.
6. Vision : _____ R.E. _____ L.E. : _____
Color Vision : _____
Hearing : _____
General Physical Examination : _____

I certify that I have carefully examined Mr.Ms. _____

Son/Daughter of Mr./Mrs. _____, who has signed in my presence. He/She has no mental and physical disease and is FIT to undergo professional education at North Eastern Regional Institute of Science and Technology, Nirjuli (Itanagar), Arunachal Pradesh, India.

Signature of the Candidate

Signature of the Medical Officer

(with legible seal)

Name : _____

Name : _____

Date : _____

Regd.No.: _____ **Date :** _____



NORTH EASTERN REGIONAL INSTITUTE OF SCIENCE & TECHNOLOGY
[Deemed-to-be-University, under Section 3 of the UGC Act, 1956]
[Under the Ministry of Education, Govt. of India, New Delhi]
Nirjuli – 791 109
Arunachal Pradesh