

INFORMATION BROCHURE

Ph.D. ADMISSIONS

JULY 2024



**NATIONAL INSTITUTE OF
TECHNOLOGY WARANGAL**

<https://www.nitw.ac.in>

S. No.	Content	Page No.
I	INTRODUCTION	1
II	ADMISSION CATEGORIES AND ELIGIBILITY CONDITIONS	2
III	DETAILS OF THE FEE	4
IV	INSTRUCTIONS TO APPLY	5
V	DEPARTMENT SPECIFIC QUALIFICATIONS & RESEARCH AREAS	8
VI	ANNEXURES	16

ELIGIBILITY, RULES AND REGULATIONS FOR ADMISSION TO Ph.D. PROGRAM

1. INTRODUCTION

The Ph.D. Programs in Full-time (FT) and Part-time (PT) modes are offered in the following Departments:

1. Civil Engineering
2. Electrical Engineering
3. Mechanical Engineering
4. Electronics and Communication Engineering
5. Metallurgical and Materials Engineering
6. Chemical Engineering
7. Computer Science and Engineering
8. Biotechnology
9. Mathematics
10. Physics
11. Chemistry
12. Humanities and Social Sciences
13. Department of Management Studies

The candidates selected for admission to Ph.D. under Full-Time program are eligible to receive Institute fellowship as per Ministry of Education rules (Vide reference No. http://www.education.gov.in/sites/upload_files/mhrd/files/15-2-2019-TC.pdf). However, the candidates with GATE/CSIR-UGC-NET including lectureship (Assistant Professorship) qualification are eligible for enhanced Institute fellowship (Vide reference No. F.No.12-212O23-U1, dt. 11.09.2023).

The Institute fellowships are subject to change from time to time as per the instructions from the Ministry of Education, Government of India.

Category-wise (GEN-EWS, OBC-NCL, SC, ST, PwD) reservations on overall available seats will be followed as per Government of India norms. Online applications are invited from highly motivated candidates.

The application must be submitted online at:

<https://admissions.nitw.ac.in/register/?next=/>

- Please read the instructions given in the brochure carefully before filling up the online application form.
- You are required to submit the application only **ONLINE mode**. After filling out the form, you are advised to take a printout of your application and keep the same for your record.
- Applications without online payment details will not be considered.



IMPORTANT DATES:

Announcement of inviting applications online:	March 4, 2024
Last date to receive online applications:	April 3, 2024
Announcement of shortlisted candidates for written test/ interview:	April 16, 2024
Dates of written test/ interview:	April 29-May 2, 2024
Announcement of selected candidates:	May 14, 2024

2. ADMISSION CATEGORIES AND ELIGIBILITY CONDITIONS

2.1 Admission Categories: There are two types of admission categories for Ph.D.

Degree Program: full-time, and part-time.

Full-time: There are eight categories in the full-time Ph.D. Degree Program.

- a. Full-time student on Institute fellowship.
- b. Full-time Government/ Semi-Government Fellowship awardees/ QIP/ FIP (UGC) / CSIR/ UGC/ DOE/ DST/ DBT/ NBHM/ INSPIRE, etc.
- c. Full-time project fellows/ JRF/ SRF appointed in R&D projects being carried out at NITW.
- d. Full-time Sponsored student from Industry/ R&D organizations.
- e. Indian Council for Cultural Relations (ICCR) fellowship awardees (Foreign students).
- f. Full-time External (CSIR/ JRF/ SRF Fellows) working in National Research Laboratories/ R&D Organizations having necessary facilities.
- g. Full-time Self-financing Programme (Sponsored by Industry).
- h. Full-time Self-finance (Rules of reservation are not applicable. Master's degree is compulsory whereas GATE/ UGC/ CSIR/ INSPIRE/ NET/ CAT is not mandatory).

Part-time: There are five categories in the part-time Ph.D. Degree Program.

- i. Permanent faculty and other permanent staff of NIT, Warangal.
- j. Permanent faculty from Private Academic Institutions.
- k. Both permanent and contractual faculty from Educational Institutions fully funded by the Government or Maintained by Public-Private Partnership (PPP) Mode.
- l. Permanent Employees from Private Industries with R&D facilities with membership in CII/ ASSOCHAM or any other similar membership.
- m. Permanent employees working in Government R&D laboratories/ Government Organizations/ Government Industry/ PSUs/ State Undertakings.

NOTE:

- i) A candidate of category (a and c) will receive the Institute scholarship for a duration of three years, which may be extendable by two more years, based on the recommendations of the Doctoral Scrutiny Committee.
- ii) Candidates of category (d) shall be sponsored and financed by the sponsoring organization.
- iii) Candidates of category (f) shall produce a no objection certificate from the



Organization where he/ she has got a fellowship and also acceptance from a possible supervisor along with biodata from the Organization. There will not be any financial commitment from NITW for candidates under category (f).

- iv) Candidates of category (g) shall produce a No Objection and Sponsorship Certificate from the Organization where he/ she is working.
- v) A part-time candidate of category (i) shall produce a sponsorship-cum-clearance certificate from the Director, NITW.
- vi) A part-time candidate of category (j) shall produce a No Objection Certificate from the present Institute which should be AICTE recognized.
- vii) A part-time candidate of category (k, l, and m) shall produce a No Objection Certificate from the present employer.
- viii) Change of status from full-time to part-time will be subjected to the approval of the senate based on recommendations of DSC.
- ix) No student can receive a scholarship/ fellowship from more than one source, either Government or Private.
- x) Any candidate of the **PwD** category will only be considered eligible for admission after approval of the Medical Board, duly constituted by the Institute.

2.1.1 In the case of candidates of category (a), GATE is not mandatory. In case of candidates with M.Sc./ M.Sc.(Tech)/ MBA/ MA qualification, GATE/UGC-CSIR-NET/ INSPIRE qualification is necessary.

2.1.2 In the case of candidates of categories (d), (e), (f), (g) and (h), GATE/ UGC-CSIR-NET, qualification is relaxed. However, they (except category (e)) will be selected through an Institute entrance test and/ or an interview, as per the discretion of the Department.

2.1.3 Written test is exempted to a permanent faculty/ staff member of NITW who wishes to register for a Ph.D. in the Department where he/ she is working. If the permanent faculty/ Staff member wishes to work for his/ her Ph.D. in some other Department, then the written test and/ or interview are/ is necessary.

2.1.4 Admission under the category (l and m) is open to Permanent Employees from Private Industries with R&D facilities, Government R&D laboratories/ Government Organizations/ Government Industry/ PSUs/ State Undertakings with B.Tech who have put in at least 5 years of experience or 4 years of experience with M.Tech/ ME/MSc/MBA/MA. The selection of candidates under this category is based on written test and interview.

2.1.5 Candidates of all categories must appear for an interview.

2.2 Eligibility:

Engineering Departments:

Candidates with a minimum of 60% aggregate marks or 6.5 CGPA at both UG and PG for GEN/ GEN-EWS/ OBC-NCL category and minimum 55% aggregate marks or 6.0 CGPA at both UG and PG for SC/ ST/ PwD category. **GATE is not mandatory for both full-time and part-time scholars.**

(OR)



Candidates with Bachelor's degree in Engineering/ Technology **with valid GATE score (not mandatory for part-time)** and at least CGPA of 8.0/10 or 75% of marks under GEN/ GEN-EWS/ OBC-NCL category and at least CGPA of 7.5/10 or 70% under SC/ ST/ PwD category.

Note: Please refer to Department specific qualifications. Departments such as Biotechnology, Chemical Engineering, Metallurgical, and Materials Engineering also consider M.Sc. candidates. However, **GATE/UGC-CSIR-NET/INSPIRE qualification is mandatory for M.Sc. candidates.**

Science Departments:

Candidates with Master's degree in the relevant discipline of Science (Mathematics/ Physics/ Chemistry)/ B.Tech or equivalent degree/ M.Tech or equivalent degree with a minimum of 60% aggregate marks or 6.5 CGPA at both UG and PG (wherever applicable) for GEN/ GEN-EWS/ OBC-NCL category and minimum 55% aggregate marks or 6.0 CGPA at both UG and PG for SC/ ST/ PwD category. All candidates must have qualified in GATE/ UGC/ CSIR/ INSPIRE/ NET (**not mandatory for part-time scholars**).

Humanities:

Candidates with a Master's degree in the relevant discipline of English with a minimum of 60% aggregate marks or 6.5 CGPA at UG and PG for GEN/ GEN-EWS/ OBC-NCL category and minimum 55% aggregate marks or 6.0 CGPA at both UG and PG for SC/ ST/ PwD category. All candidates must have qualified in GATE/ UGC-NET (**not mandatory for part-time scholars**).

Department of Management Studies:

Candidates with a minimum of 60% aggregate marks or 6.5 CGPA at both UG and PG for GEN/ GEN-EWS/ OBC-NCL category and a minimum 55% aggregate marks or 6.0 CGPA at both UG and PG for SC/ ST/ PwD category in the following:

Master's degree or equivalent in Management/ Social Sciences/ Commerce/ 2-year PGDM/ M.Tech in any specialization/Management/Technology Management/ Entrepreneurship Management/ MSc Statistics / CA/CS/ICWA with CAT/UGC-NET/GMAT/ GRE/ GATE/CSIR NET (Not mandatory for Part-time candidates).

3. DETAILS OF THE FEE

For Full-time and Part-time Candidates:

S. No.	Details of the fee	Amount (in Rs.)
1	Tuition Fee per semester	15,000/-
2	*Other Fee	41,000/-
	Total	56,000/-



For Full-time Self-Finance Candidates:

S. No.	Details of the fee	Amount (in Rs.)
1	Tuition Fee Per Semester	50,000/-
2	Contingency	10,000/-
3	*Other Fee	41,000/-
	Total	1,01,000/-

*Other Fee Details (Rs. 41, 000/-)

a) Onetime payment at the time of Admission: Rs. 30,000/-

- i. Admission fee: Rs. 7,500/-
- ii. Identity Card: Rs. 500/-
- iii. Alumni Association Fee: Rs. 2,000/-
- iv. Institute Development Contribution: Rs. 20,000/-

b) Other Fee payable per year: Rs. 11,000/-

- i. IT User charges: Rs. 2,000/-
- ii. Technical Association, Student Activity & Welfare Fund: Rs. 2,500/-
- iii. Games Fee & Inter-University Tournaments: Rs.1,000/-
- iv. Medical & Health Services: Rs. 1,500/-
- v. Student Library Fund: Rs. 2,000/-
- vi. Institute Fests: Rs. 1,000/-
- vii. Career Development Fee: Rs. 1,000/-

Convocation and thesis Fee:

- i. Convocation Fee: Rs. 2500/- (to be paid only in the final year)
- ii. Thesis processing fee: Rs. 5,000/- (charged in Semester V)
- iii. Thesis evaluation fee: Rs. 35,000/- (charged in Semester V)

Note: The selected candidates are required to pay the fee online.

4. INSTRUCTIONS TO APPLY

4.1 Ph.D. Program on Full-time Basis (with Institute Fellowship & Self-Finance):

The application form is to be submitted online which is available at <https://admissions.nitw.ac.in/register/?next=>

All the necessary documents are to be uploaded online. The proof of payment of the application fee (Rs. 1600/- for GEN/ GEN-EWS/ OBC-NCL and Rs. 800/- for SC/ ST/ PwD candidates) must accompany the application form.

Note: The Application Fee once paid will not be returned under any circumstances.



The link to pay the registration fee is given below:

Ph.D. Application Fee – GEN/ GEN-EWS/ OBC-NCL – July 2024

<https://rzp.io//PhDGen1600>

(Copy the above link and paste in the browser)

Ph.D. Application Fee – SC/ ST/ PwD – July 2024

<https://rzp.io//PhDSCSTPWD800>

(Copy the above link and paste in the browser)

Other payments like mobile payments (IMPS), NEFT, RTGS and direct transfer will not be accepted. If paid by any chance, it will not be refunded. Do not use mobile applications to make the payment.

The candidates who are employed and wish to do Ph.D. under full-time must enclose **NO OBJECTION** certificate from the employer.

Check list of documents to be uploaded along with the application.

- ✓ SSC/ Class X certificate in support of Date of Birth.
- ✓ Intermediate/ (10+2)/ Class XII certificate.
- ✓ Provisional certificate/ Degree certificates and Marks Memos of the qualifying Examinations.
- ✓ Caste certificate (in case of SC/ ST candidates).
- ✓ For GEN-EWS candidates, EWS certificate issued on or after April 1, 2023 as per the format given in the Annexure-I only is acceptable. However, selected candidates are required to produce the GEN-EWS certificate issued on or after April 1, 2024.
- ✓ For OBC-NCL candidates, OBC-NCL certificate issued on or after April 1, 2023 as per the format given in the Annexure-II only is acceptable along with the undertaking. However, selected candidates are required to produce the OBC-NCL certificate issued on or after April 1, 2024.
- ✓ No Objection Certificate from the employer issued on or after March 4, 2024 only is acceptable (Annexure-III).
- ✓ Relieving certificate from the employer (at the time of admission).
- ✓ Photograph on application form.
- ✓ Grade/ Rank Card of GATE or UGC-NET or INSPIRE or GPAT or CAT or GMAT or CSIR (as applicable).
- ✓ Fee payment receipt with transaction number.
- ✓ Statement of Proposal (Research Proposal).
- ✓ Any other documents (List of publications, if any).

4.2 Ph.D. Program on Part-time Basis:

The application form is to be submitted online which is available at <https://admissions.nitw.ac.in/register/?next=/>

All the necessary documents are to be uploaded online. The proof of payment of registration fee (Rs. 1600/- for GEN/ GEN-EWS/ OBC-NCL and Rs. 800/- for SC/ ST/ PwD candidates) must accompany the application form.

Note: The Application Fee once paid will not be returned under any circumstances.



The link to pay the registration fee is given below:

Ph.D. Application Fee – GEN/ GEN-EWS/ OBC-NCL – July 2024

<https://rzp.io//PhDGen1600>

(Copy the above link and paste in the browser)

Ph.D. Application Fee – SC/ ST/ PwD – July 2024

<https://rzp.io//PhDSCSTPWD800>

(Copy the above link and paste in the browser)

Other payments like mobile payments (IMPS), NEFT, RTGS and direct transfer will not be accepted. If paid by any chance, it will not be refunded. Do not use mobile applications to make the payment.

Checklist of documents to be uploaded along with the application:

- ✓ SSC/ Class X certificate in support of Date of Birth.
- ✓ Intermediate/ (10+2)/ Class XII certificate.
- ✓ Provisional certificate/ Degree certificates and Marks Memos of the qualifying Examinations.
- ✓ Caste certificate (in case of SC/ ST candidates).
- ✓ For GEN-EWS candidates, EWS certificate issued on or after April 1, 2023 as per the format given in the Annexure-I only is acceptable. However, selected candidates are required to produce the GEN-EWS certificate issued on or after April 1, 2024.
- ✓ For OBC-NCL candidates, OBC-NCL certificate issued on or after April 1, 2023 as per the format given in the Annexure-II only is acceptable along with the undertaking. However, selected candidates are required to produce the OBC-NCL certificate issued on or after April 1, 2024.
- ✓ No Objection Certificate from the employer issued on or after March 4, 2024 only is acceptable (Annexure-III).
- ✓ Photograph on application form.
- ✓ Fee payment receipt with transaction number.
- ✓ Statement of Proposal (Research Proposal).
- ✓ Any other documents (List of publications, if any).

Note: The candidates selected for admission into the Ph.D. program on a part-time basis are not eligible to receive Institute fellowship.

IMPORTANT:

- The decision of the Institute in all matters will be final and binding on all the applicants who respond to this admissions notification. No interim correspondence or unsolicited query will be entertained from the applicants in connection with the process of scrutiny/selection including reasons for not being shortlisted for written test/interview.
- Any legal dispute arising out of this admissions notification is subject to the Courts having jurisdiction over Warangal, Telangana.
- NIT Warangal is a fully residential Institute. All the Full-time research scholars admitted into NIT Warangal are required to stay in the campus.



5. DEPARTMENT SPECIFIC QUALIFICATIONS & RESEARCH AREAS

Department of Civil Engineering	<p>B.Tech/ B.E. or Equivalent degree in any branch of Engineering & Technology and M.Tech/ M.E in relevant specialization.</p> <p style="text-align: center;">(OR)</p> <p>B.Tech/ B.E. or Equivalent degree in Engineering/ Technology with valid GATE score</p>
<u>Research Areas</u>	
Engineering Structures	Water Resources Engineering
Geotechnical Engineering	Construction Technology & Management
Environmental Engineering	Remote Sensing & Geographic Information System
Transportation Engineering	Waste Management

Department of Electrical Engineering	<p>B.Tech/ B.E. or Equivalent degree in Electrical Engineering or Electrical and Electronics Engineering and M.Tech/ M.E in Electrical Engineering or allied Specializations in broad research areas mentioned below.</p> <p style="text-align: center;">(OR)</p> <p>B.Tech/ B.E or Equivalent degree in Electrical Engineering or Electrical and Electronics Engineering with valid GATE score.</p>	
<u>Research Areas</u>		
Power Electronics & Drives	Smart Grid Technologies	Power Systems Engineering
Power Driver for LED Lighting Systems	Wide Area Control of Power Systems	FACTS/ HVDC Control
Motor Drives (SRM/IM/BLDC/PMSM)	Renewable Energy Sources	Power Quality
Multi-Level Inverters	Electricity Market Modeling, Risk Optimization Ancillary Service Market	Power System Stability and Security
Pulsed Power Technology	Grid Integration of Large Scale Distributed Energy Resources	Real Time Control of Power Systems
EV Technologies	Power System State Estimation	Power System Protection
High frequency Inverters for Induction heating systems	AI Techniques in Power Systems	Power System Deregulation
Bidirectional Power Converters & Energy Storage Systems	Control & Instrumentation	High Voltage Engineering
Multifunctional Grid Tied Inverter Configurations & Control Strategies	DATA Science Application in Power Engineering	Condition Monitoring of Power Equipment



Department of Mechanical Engineering	<p>B.Tech/ B.E or Equivalent degree in Mechanical Engineering/ Production Engineering/ Industrial Engineering/ Mechatronics/ Automobile Engineering/ Aeronautical Engineering/ Marine Engineering and M.Tech/ M.E. in Mechanical Engineering allied areas and specializations within the broad research areas mentioned below.</p> <p style="text-align: center;">(OR)</p> <p>B.Tech/ B.E or Equivalent degree in Mechanical Engineering/ Production Engineering/ Industrial Engineering/ Mechatronics/ Automobile Engineering/ Aeronautical Engineering/ Marine Engineering with valid GATE score</p>	
<u>Research Areas</u>		
Automobile Engineering	Modeling of IC Engines	Micro-combustors
Materials Technology	Machine Design	Tribology
Topology and Shape Optimization	Isogeometric FEA	AI for Design
Robotics	Manufacturing Engineering	Modern Machining Processes
Thermal Engineering	CFD	Battery Thermal Management Systems
Mechatronics	Fluid Mechanics	Additive Manufacturing
Industrial Engineering and Management	Entrepreneurship	Friction Stir Welding
Processing Renewable Fuels	Energy Studies	

Department of Electronics and Communication Engineering	<p>B.Tech/ B.E or Equivalent degree in Electronics and Communication Engineering and M.Tech/ M.E. in Electronics and Communication Engineering or equivalent with Research areas in Communication/ VLSI/ Instrumentation.</p> <p style="text-align: center;">(OR)</p> <p>B.Tech/ B.E or Equivalent degree in Electronics and Communication Engineering with valid GATE score</p>	
<u>Research Areas</u>		
Radar Signal Processing	VLSI Architectures, MOS Devices, On-chip Circuits	Speech Processing
RFIC, MMIC for 5G, MW Active and Passive Circuits	Nano Electronics & Devices	Embedded Systems
Antennas, Antenna Arrays	Visible Light Communications	Bio-medical Engineering
MIMO Antennas & Beam forming, Smart Antennas	Optical Signal Processing	Process Control Design
5G, MIMO, MMIMO	Cognitive Radio	Image & Video Processing
Wireless Ad-hoc & Sensor Networks	AI, ML, DL, IoT & Security	



Department of Metallurgical and Materials Engineering	<p>B.Tech/ B.E or Equivalent degree in Metallurgical & Materials Engineering/ Mechanical Engineering and M.Tech/ M.E in Metallurgical and Materials Engineering and related fields. (OR)</p> <p>M.Sc. in Physics/ Chemistry/ Materials Science/ Electronics/ Nanoscience and Nanotechnology with M.Tech. in Materials Science/ Metallurgy/ Nanoscience and Nanotechnology/ Ceramic Engineering/ Surface Engineering. (OR)</p> <p>B.Tech. or B.E or Equivalent degree in Metallurgical & Materials Engineering/ Mechanical Engineering with valid GATE score (OR)</p> <p>M.Sc. in Physics/ Chemistry/ Materials Science/ Polymer/ Electronics/ Nanoscience and Nanotechnology/ Ceramic Engineering/ Surface Engineering and relevant area with GATE/ NET qualification.</p>	
	<u>Research Areas</u>	
	Physical Metallurgy	Surface Engineering
	Powder Metallurgy	High Temperature Corrosion and Oxidation
	Welding Metallurgy	Fatigue and Fracture Mechanics
	Structure Property Correlation	Environmental Degradation of Materials
	Special Steels/ High Temperature Materials	Ceramics, Polymers and Composites
	Severe Plastic Deformation	Biomaterials
	Materials for Extreme Environments	Nano Materials
	Smart Materials	3d Printing
Non-Destructive Evaluation	Ultra-Fine Grain Materials	

Department of Chemical Engineering	<p>B.Tech/ B.E or Equivalent degree in Chemical Engineering/ Mechanical Engineering/ Biotechnology/ Civil Engineering / Metallurgy /Petrochemical Engineering/ Petroleum Technology/ Nanotechnology/ Instrumentation and Control Engineering/ EEE/ Electrochemical Engineering/ Electronics & Communication Engineering / Electronics & Instrumentation/ Chemical Technology/ Polymer Technology/ Biochemical Engineering/ Energy Engineering/ Environmental Engineering/ Agricultural Engineering and allied disciplines and M.Tech. or M.E in Chemical Engineering/ Mechanical Engineering/ Biotechnology/ Petrochemical Engineering/ Petroleum Technology/ Process Control and Instrumentation/ Control Systems/ Polymer Technology/ Biochemical Engineering /Energy Engineering/ Nanotechnology/ Environmental</p>
---	--



	<p>Engineering and allied areas. (OR) B.Tech/B.E. or Equivalent degree in Chemical Engineering/ Mechanical Engineering/ Biotechnology/ Civil Engineering / Metallurgy /Petrochemical Engineering/ Petroleum Technology/ Nanotechnology/ Instrumentation and Control Engineering/ EEE/ Electrochemical Engineering/ Electronics & Instrumentation/ Chemical Technology/ Polymer Technology/ Biochemical Engineering/ Energy Engineering/ Environmental Engineering/ Agricultural Engineering and allied disciplines <u>with valid GATE score</u> (OR) M.Sc (Chemistry, Physics, Maths, Material Science, Environmental Science, Polymer Science, Biotechnology, Nanotechnology, Agriculture and allied areas), M.Pharm. The candidate should have valid GATE/CSIR/UGC NET/GPAT/DST-Inspire Fellowship.</p>
<u>Research Areas</u>	
Biomass Gasification	Fuel Cells, Batteries and Supercapacitors
Hydrogen generation and storage	Membrane processes
Bioreactors	Electronic waste recycling
Reactive Distillation	Chemical process scheduling
Microfluidics	Multiphase flows
Interfacial Science	Chemical reactor analysis and design
Wastewater Treatment	Sustainable and energy efficient technologies
Microreactors	Process control
Process Intensification	Nonlinear analysis
Nanotechnology & Nanomaterials	Computational Fluid Dynamics
Fluidized Bed Operations	Bioenergy & Biofuels
Catalysis	Corrosion Engineering
Functional materials	Pharmaceuticals and fine chemicals
AI and Machine learning	Polymer and Composite materials
Drug design & delivery	Carbon capture, Sequestration and Utilization
Chemical process modeling, simulation, and optimization	Transport processes
Circular Economy	3D printing
Agricultural Engineering	Molecular Simulations

Note: The department has two SPARC projects and the suitable selected candidates will get the opportunity to work on these projects.



<p style="color: red; font-weight: bold; margin: 0;">Department of Computer Science and Engineering</p>	<p>B.Tech/ B.E or Equivalent degree in Computer Science and Engineering and M.Tech/ M.E in Computer Science and Engineering or equivalent. (OR) B.Tech/ B.E or Equivalent degree in Computer Science and Engineering with valid GATE score</p> <p>Note: Some additional fellowships sponsored by M/s. TCS and IDRBT are also available.</p>
<p style="color: red; font-weight: bold; margin: 0;"><u>Research Areas</u></p>	
<p>Algorithms and Graph Theory, Bioinformatics, DNA Computing, Quantum Computing, Database Systems.</p>	
<p>Artificial intelligence, Machine Learning, Data Mining, Deep Learning, Soft Computing, Evolutionary Computation.</p>	
<p>Big Data Analytics, Computational Neuroscience, Computer Vision, Human Computer Interaction, Image Processing, Natural Language Processing, Swarm and Other Optimization Techniques, Video Analytics.</p>	
<p>Computer Networks, Wireless Ad-hoc and Sensor Networks, Parallel Systems, Distributed Systems, High Performance Computing, Cluster Computing.</p>	
<p>Mobile Computing, Internet of Things, Osmotic Computing, Fog Computing, Cloud Computing.</p>	
<p>Cryptography, Information Security, Security and Privacy, Block Chain Technologies.</p>	
<p>Service-Oriented Architecture, Microservices Architecture, Model-Driven Framework-oriented Systems.</p>	
<p>Software Engineering, Program Analysis, Software Reliability Prediction, Software Testing, Design Pattern, Reactive Pattern, Smart Contract Testing.</p>	

<p style="color: red; font-weight: bold; margin: 0;">Department of Biotechnology</p>	<p>B.E./B.Tech. in Biotechnology/ Industrial Biotechnology/ Biochemical Engineering/ Bioinformatics/ Biomedical Engineering/ Biotech. Engineering/ Bioengineering/ Chemical and Bio-Engineering/ Genetic Engineering/ Food Technology and Biochemical Engineering/ Biological Sciences and Bioengineering/ Biosciences and Bioengineering/ Biotechnology and Biochemical Engineering/ Biochemical and Biotechnology Engineering/ Biomedical Instrumentation, and M.E./ M.Tech./ M.S. (by Research)/ M.S.* (from abroad Two-year program only) in Biotechnology/ Industrial Biotechnology/ Biochemical Engineering/ Bioinformatics/ Biomedical Engineering/ Biotech Engineering/ Bioengineering/ Chemical and Bio-Engineering/ Genetic Engineering/ Food Technology and</p>
--	--



	<p>Biochemical Engineering/ Biological Sciences and Bioengineering/ Biosciences and Bioengineering/ Biotechnology and Biochemical Engineering/ Biochemical and Biotechnology Engineering/ Biomedical Instrumentation.</p> <p style="text-align: center;">(OR)</p> <p>B.E./B.Tech. in Biotechnology/ Industrial Biotechnology/ Biochemical Engineering/ Bioinformatics/ Biomedical Engineering/ Biotech. Engineering/ Bioengineering/ Chemical and Bio-Engineering/ Genetic Engineering/ Food Technology and Biochemical Engineering/ Biological Sciences and Bioengineering/ Biosciences and Bioengineering/ Biotechnology and Biochemical Engineering/ Biochemical and Biotechnology Engineering/ Biomedical Instrumentation <u>with valid GATE score</u></p> <p style="text-align: center;">(OR)</p> <p>M.Sc. in Biotechnology/ Biochemistry/ Microbiology/ Botany/ Zoology/ Bioinformatics/ Life Sciences and M.Tech. in Biotechnology.</p> <p style="text-align: center;">(OR)</p> <p>M.Sc. in Biotechnology/ Biochemistry/ Microbiology/ Botany/ Zoology/ Bioinformatics/ Life Sciences <u>with GATE/ NET qualification.</u></p>
<u>Research Areas</u>	
Algal Biotechnology & Microbial Fuel Cell	Gene Therapy
Big Data & Data Science	Machine Learning
Bioelectrochemical System & Biological Wastewater Treatment	Microbial Gene regulation & Epigenetics
Bioenergy, Biorefinery & Therapeutic Proteins/ Enzymes	Modeling & Simulation of Bioprocesses
Bioinformatics	Molecular & Biochemical Parasitology
Biomass, Biomaterials & Metabolic Engineering	Nanobiotechnology & Medical Biosensors
Bioseparations Technology	Genomic Data Analysis & Cancer Signaling Pathways
Cancer Biology & Cell Signaling	Plant Biotechnology & Plant Tissue Culture
Computational Biophysics	Stem Cell Engineering
Drug Design & Discovery	Structural Biology
Environmental Biotechnology	Systems Biology
Functional Genomics & Metabolic Disorders	Enzyme Engineering
Biopharmaceutical Technology	



Information Brochure for Ph.D. Admissions, July 2024

Department of Mathematics	B.Sc. and M.Sc./ M.Phil. in Mathematics or equivalent Degree.
<u>Research Areas</u>	
Computational Fluid Dynamics	Biomechanics
Mathematical Biology	Fluid Dynamics
Differential Equations	Cryptography
Operations Research	Fuzzy Set Theory

Department of Physics	B.Sc. with Physics and M.Sc./ M.Sc. (Tech) in Physics/ M.Tech with specialization in Photonics/ Electronics/ Instrumentation/ Materials Science/ Nanotechnology/ Solid State Physics or any equivalent specialization.
<u>Research Areas</u>	
Materials Science: Multiferroics, Thin Films, Irradiation Effects on Materials, Hybrid Materials, Glass and Glass Ceramics, Polymer Composites, Luminescent Materials, Liquid Crystals, Green Synthesis.	
Energy Conversion and Storage: Renewable Energy, Energy Harvesting, Recycling Waste, Batteries, Supercapacitors.	
Theoretical Physics: Condensed Matter Physics, Statistical Mechanics	
Device Physics: Self-powered Sensors and Devices, Solar Cells, Fuel Cells, Organic Electronic Devices, Resistive Switching and Memristor, Piezo and Triboelectric Nanogenerators	
Photonics: Fibre Optic Sensing, Optical Design, Optical Elements Productions Testing, Light-matter Interaction, Nano-optics.	
Electronics: Optoelectronic Materials and Devices, Sensors, and Transducers.	
Computational Physics: Soft Matter, Biophysics, Machine Learning, DFT, Quantum Computing.	
Nanoscience: Low Dimensional Systems, Quantum Dots, Nanomaterials.	
Biophysics and Interdisciplinary Physics: Drug Delivery, Bioimaging, Tissue Engineering, Biomaterials.	

Department of Chemistry	B.Sc. and M.Sc./ M.Phil. in Chemistry or equivalent Degree.
<u>Research Areas</u>	
Coordination Chemistry	Nanocatalysts for Fuel Cells
Electrochemistry	Bio-Organic Chemistry
Catalysis	Nanomaterials
Spectrophotometry	Organic Synthesis
Chromatography	Medicinal Chemistry
Environmental Pollution	Supramolecular Chemistry
Synthetic Organic Chemistry	Carbohydrate Chemistry
Stereo Selective Synthesis	Molecular Modeling
Electrochemical Biosensors	



Information Brochure for Ph.D. Admissions, July 2024

Department of Humanities & Social Sciences	Post Graduate Degree in English with GATE/ UGC/ NET qualification and having studied B.A./ B.Sc./ B.Com. or any other Bachelor's Degree.
<u>Research Areas</u>	
British Literature	English Language Teaching

Department of Management Studies	Any graduate having Full-time M.B.A. degree with UGC/ NET qualification. (OR) Master's degree or equivalent in Management/ Social Sciences/ Commerce/ 2-year PGDM/ M.Tech in any specialization/ Management/Technology Management/ Entrepreneurship Management/ MSc Statistics / CA/CS/ICWA with CAT/UGC-NET/GMAT/ GRE/ GATE/CSIR NET (Not mandatory for Part-time candidates).
<u>Research Areas</u>	
Marketing	Human Resources
Finance	Economics
Information Technology	Operations Management
Supply Chain Management	Quality Management
Sustainability	Project Management
Industrial Management	Industrial Relations & Labour Legislations
Organizational Behaviour	Corporate Governance
Financial Engineering	Ergonomics
Strategic Management	Entrepreneurship
General Management and Allied Areas	Interdisciplinary Research



ANNEXURES



Annexure-I

Proforma for Economically Weaker Section (EWS) Certificate

Government of

(Name & Address of the authority issuing the certificate)

[This certificate MUST have been issued on or after 1st April 2023]

Certificate No. _____

Date: _____

VALID FOR THE YEAR 2023-2024

1. This is to certify that Shri/Smt./Kumari _____, son / daughter/ wife of _____ permanent resident of _____, Village/Street _____ Post Office _____ District in the State/Union Territory _____ Pin Code _____ whose photograph is attested below belongs to Economically Weaker Sections, since the gross annual income* of his/her family** is below Rs. 8 lakh (Rupees Eight Lakh only) for the financial year 2022-2023. His/her family does not own or possess any of the following assets***:
- I. 5 acres of agricultural land and above;
 - II. Residential flat of 1000 sq. ft. and above;
 - III. Residential plot of 100 sq. yards and above in notified municipalities;
 - IV. Residential plot of 200 sq. yards and above in. areas other than the notified municipalities.
2. Shri/Smt./Kumari _____ belongs to the _____ caste which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Central List).

Signature with seal of Office _____

Name _____

Designation _____

Recent Passport size attested photograph of the applicant

The income and assets of the families as mentioned would be required to be certified by an officer not below the rank of Tehsildar in the States/UTs.

Note:

- * Income covered all sources i.e. salary, agriculture, business, profession, etc.
- ** The term 'Family' for this purpose includes the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years.
- *** The property held by a 'Family' in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.



Annexure–II

Proforma for Other Backward Class (OBC Certificate)

(CERTIFICATE TO BE PRODUCED BY CANDIDATES FROM OTHER BACKWARD CLASSES APPLYING FOR ADMISSION TO CENTRAL EDUCATIONAL INSTITUTIONS (CEIs), UNDER GOVERNMENT OF INDIA)

This is to certify that Shri/ Smt./ Kum. _____ Son/ Daughter of Shri/ Smt. _____ of Village/Town _____, District/ Division _____ in the _____ State belongs to the _____ Community which is recognized as a backward class under:

- i) Resolution No.12011/68/93-BCC(C) dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No. 186 dated 13/09/93.
- ii) Resolution No. 12011/9/94-BCC dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163 dated 20/10/94.
- iii) Resolution No. 12011/7/95-BCC dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88 dated 25/05/95.
- iv) Resolution No. 12011/96/94-BCC dated 09/03/96.
- v) Resolution No. 12011/44/96-BCC dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 11/12/96.
- vi) Resolution No. 12011/13/97-BCC dated 03/12/97.
- vii) Resolution No. 12011/99/94-BCC dated 11/12/97.
- viii) Resolution No. 12011/68/98-BCC dated 27/10/99.
- ix) Resolution No. 12011/88/98-BCC dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270 dated 06/12/99.
- x) Resolution No. 12011/36/99-BCC dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71 dated 04/04/2000.
- xi) Resolution No. 12011/44/99-BCC dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 21/09/2000.
- xii) Resolution No. 12015/9/2000-BCC dated 06/09/2001.
- xiii) Resolution No. 12011/1/2001-BCC dated 19/06/2003.
- xiv) Resolution No. 12011/4/2002-BCC dated 13/01/2004.
- xv) Resolution No. 12011/9/2004-BCC dated 16/01/2006 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 16/01/2006.



Shri/ Smt./ Kum. _____ and/ or his family ordinarily reside(s) in the

_____ District/ Division of _____ State. This is also to certify that he/ she does not belong to the Persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M.No.36012/22/93-Estt. (SCT) dated 08/09/93 which is modified vide OM No.36033/3/2004 Estt. (Res.) dated 09/03/2004 or the latest notification of the Government of India.

Dated:

**District Magistrate/ Competent Authority:
Seal**

NOTE:

- (a) The term “Ordinarily” used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.
- (b) The authorities competent to issue Caste Certificates are indicated below:
 - i) District Magistrate/ Additional Magistrate/ Collector/ Deputy Commissioner/ Additional Deputy Commissioner/ Deputy Collector/ 1st Class Stipendiary Magistrate/ Sub-Divisional Magistrate/ Taluka Magistrate/ Executive Magistrate/ Extra Assistant Commissioner (not below the rank of 1st Class Stipendiary Magistrate).
 - ii) Chief Presidency Magistrate/ Additional Chief Presidency Magistrate/ Presidency Magistrate.
 - iii) Revenue Officer not below the rank of Tahsildar, and
 - iv) Sub-Divisional Officer of the area where the candidate and/ or his family resides.
- (c) The annual income/ status of the parents of the applicant should be based on financial year ending March 31, 2023.



Declaration/ Undertaking for OBC Candidates only

I, _____ Son/ Daughter
of Shri/ Smt. _____ resident of
_____ village/ town/ city,
_____ district,
_____ State, hereby declare that I belong to the
_____ community which is recognized as a backward
class by the Government of India for the purpose of reservation in services
admission in Central Government Institutions as per orders contained in
Department of Personnel and Training Office Memorandum No.
36012/22/93 – Estt. (SCT), dated 8/9/1993. It is also declared that I do not
belong to persons/ sections (Creamy Layer) mentioned in Column 3 of the
Schedule to the above referred Office Memorandum, dated 8/9/1993,
which is modified vide Department of Personnel and Training Office
Memorandum No. 36033/3/2004 Estt. (Res.) dated 9/3/2004 or the latest
notification of the Government of India.

I also declare that the condition of status/ annual income for creamy layer of
my parents/ guardian is within prescribed limits as on financial year ending
on March 31, 2023.

Place:
Date:

Signature of the Candidate

Note: Applications without declaration/undertaking not signed by Candidates will be rejected.



No Objection Certificate

(Should be on the letter head of the employee's organization)

Ref. No.

Date:

To
The Director,
National Institute of Technology,
Warangal-506 004,
Telangana

Sub.: No objection certificate for pursuing Ph.D. (Full-time/part-time) at NIT Warangal

Dear Sir,

We have no objection if Mr./ Mrs./ Ms. _____ an employee of our Organization/ Institute, if admitted to the Ph.D. program in the Department of _____ at National Institute of Technology, Warangal as a Full-time/part-time student.

It is certified that he/she has completed _____ years of service in our Organization/ Institute as a regular employee.

We shall give him/ her leave of absence at our Organization/ Institute to complete the course work during his/ her Ph.D. program at NIT Warangal.

Signature and Seal
Head of the Organization/ Institute

Note: No Objection Certificate issued on or after March 4, 2024 is only acceptable.

