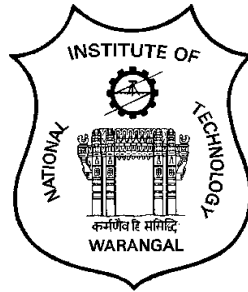# National Institute of Technology Warangal

Ph.D. Admissions

December 2017 Session

Brochure

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

Admission into Ph.D. Programs for December 2017 session

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 Communications Engineering	5. Metallurgical and Materials Engineering	6. Chemical Engineering
7. Computer Science and Engineering	8. Biotechnology	9. Physics
10. Chemistry	11. Mathematics	12. Humanities and Social Sciences
13. School of Management		

The candidates selected for admission into Ph.D under Full-Time program are eligible to receive institute fellowship as per MHRD rules. (vide reference No. http : // mhrd.gov.in / sites / upload files / RevPhd02032015.pdf, dt. 02.03.2015). The above institute fellowships are subject to change from time to time, under instructions of the Ministry of Human Resource Development, Government of India.

Candidates who are in final year of Qualifying Degree can also apply. However, such candidates have to submit their provisional certificate on or before **01.02.2018.**

Category-wise (OBC, SC, ST, PWD) reservations on overall available seats will be followed as per Government of India norms.

Tentative Schedule of Ph.D. Admissions for December, 2017 Session:

Announcement of inviting Applications: October 16th 2017

Last date to receive applications: November 7th 2017

Announcement of candidates called for Written Test/Interview: November 13th 2017

Dates of Written Test/Interview: November 22nd - 24th 2017

Announcement of Selected Candidates: December 4th 2017

Dates of Reporting of selected candidates for Ph.D. admission: December 11th & 12th 2017

A) ELIGIBILITY CRITERIA FOR ADMISSION INTO Ph.D. PROGRAM ON FULL-TIME BASIS

i) Faculty of Engineering Departments:

Master's/M.S. (by Research) degree in Engineering / Technology in the appropriate branch of study with minimum 60% aggregate marks (CGPA ≥ 6.5/10) in UG or PG for admission under OC / OBC category and minimum 55% aggregate marks (CGPA of ≥ 6.0) for candidates under SC/ST/PwD category. OR

Bachelor's in Engineering / Technology with valid GATE score and at least CGPA of 8.0/10 or 75% of marks under OC/OBC category and atleast CGPA OF 7.5/10 or 70% for candidates under SC/ST/PwD category. Candidates who have obtained their Bachelor's degree from Centrally funded institutes will be exempted from valid GATE score requirement.

ii) Faculty of Sciences (Maths/Physics/Chemistry) and Humanities & Social Sciences (English)

Master's degree in the relevant discipline of Science (Maths/Physics/Chemistry) and Humanities & Social Sciences (English) with minimum of 60% aggregate marks (CGPA ≥ 6.5/10) in PG for candidates under OC/OBC category and minimum of 55% aggregate marks (CGPA ≥ 6.0) in PG for candidates under SC/ST/PwD category. All candidates must have a valid GATE/UGC/CSIR/INSPIRE/NET score.

iii) Faculty of Management Studies:

Master's degree in Business Administration with minimum 60% aggregate marks (CGPA ≥ 6.5/10) in PG for candidates under OC/OBC category and minimum of 55% marks (CGPA ≥ 6.0) for candidates under SC/ST/PwD category. All candidates must have a valid UGC/NET/CAT/MAT score.

"GATE qualification" means score above the prescribed cut-off mark specified in the GATE score card for respective categories viz; OC, OBC, SC and ST Candidates can visit www.admission.nitw.ac.in for information regarding the individual departments.

The above qualifications are the minimum eligibility criteria required and Institute reserves the right to fix higher norms for shortlisting of the candidates to be called for written test / interview.

B) DEPARTMENT SPECIFIC QUALIFICATIONS & SPECIALIZATIONS:

Department of Civil Engineering	B.Tech. or B.E. or Equivalent degree in any branch of Engineering & Technology M.Tech. or M.E. in relevant specialization.
Research areas	
Structural Dynamics & Earthquake Engineering	Civil Engineering Materials
Construction Technology & Management	Hydrology & Water Resources Engineering
Environmental Engineering	Transportation Engineering
Remote Sensing & Geographic Information System	Geotechnical Engineering

Department of Electrical Engineering	B.Tech. or B.E. or Equivalent degree in Electrical Engineering or Electrical and Electronics Engineering. M.Tech. or M.E. in Electrical Engineering or allied specializations in broad research areas mentioned below.	
	Research areas	
FACTS/HVDC Control	Power System Deregulation	Renewable Energy Sources
Power Quality	A I Techniques in Power Systems	Motor Drives
Power System State Estimation	Smart Grid Technologies	Switch Mode Power Conversion
Real Time Control of Power Systems	Power System Stability and Security	Control & Instrumentation
Power System Protection	Wide Area Control of Power Systems	

Department of Mechanical Engineering	B.Tech. or B.E. or Equivalent degree in Mechanical Engineering / Production Engineering / Industrial Engineering / Mechatronics / Automobile Engineering/Aeronautical Engineering / Marine Engineering. M.Tech. or M.E. in Mechanical Engineering allied areas and specializations of within in the broad research areas mentioned below.	
	Research areas	
Materials Technology	NDT	Refrigeration and Air Conditioning
Heat Transfer	Mechatronics	Computational Fluid Dynamics
Fluid Mechanics	Automobile Engineering	Metrology/Precision Engineering
Entrepreneurship	Turbo Machines	Composites / Nanomaterials
Robotics	Thermal Engineering	Design / Structural Optimization /Finite Element Analysis
Welding	Additive Manufacturing	Alternative Sources of Energy/Energy Systems
Tribology	I. C. Engines & Alternate Fuels	CAD/CAM/CIM/Geometric Modeling
MEMS/NEMS	Manufacturing Engineering	Industrial Engineering and Management

Department of Electronics and Communication Engineering	B.Tech. or B.E. or Equivalent degree in Electronics and Communication Engineering with M.Tech. or M.E. in Electronics and Communication Engineering or equivalent with research areas in Communication / VLSI/Instrumentation.

Research areas	
Signal Processing	Wide Band Communications
Microwave Engineering	VLSI

Department of Metallurgical and Materials Engineering	B.Tech. or B.E. or Equivalent degree in Metallurgical and Materials Engineering / Mechanical Engineering M.Tech. or M.E. in Metallurgical and Materials Engineering and related fields.

Research areas	
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	Ultra fine grain Materials
Non-destructive evaluation	

Department of Chemical Engineering	B.Tech. or B.E. or Equivalent degree in Chemical Engineering / Mechanical Engineering / Biotechnology / Petrochemical Engineering/ Petroleum Technology/ Instrumentation and Control Engineering / EEE / Electrochemical Engineering / Electronics & Instrumentation/ Chemical Technology/ Polymer Technology/ Biochemical Engineering/ Energy Engineering/Environmental Engineering and allied disciplines. M.Tech. or M.E. in Chemical Engineering/Mechanical Engineering(Thermal Engineering)/ Biotechnology / Petrochemical Engineering / Petroleum Technology/ Process Control and Instrumentation / Control Systems / Polymer Technology / Biochemical Engineering / Energy Engineering / Nanotechnology / Environmental Engineering; and allied areas.

Research areas	
Biomass Gasification	Fuel Cells
Plate Heat Exchangers	Membrane processes
Bioreactors	Flow batteries
Reactive Distillation	Chemical process scheduling
Microfluidics	Multiphase flows
Interfacial Science	Chemical reactor analysis and design
Wastewater Treatment	Sustainable and energy efficient technologies
Micro Reactors	Process control
Process Intensification	Non linear analysis
Nano Materials	Computational Fluid Dynamics
Fluidized Bed Operations	Biofuels
Catalysis	Corrosion Engineering
Biochemical Engineering	Transport phenomena

Department of Computer Science and Engineering	B.Tech. or B.E. or Equivalent degree in Computer Science and Engineering. M.Tech. or M.E. in Computer Science and Engineering or equivalent. **Note**: Some additional fellowships sponsored by M/s.TCS and IDRBT are also available.

Research areas

Optimization Techniques	Information Security	Computer networks
Big Data Analytics	Cryptography	Mobile Computing
Database Management Systems	Neural Networks	Service-Oriented Architecture
Parallel Computing	Distributed Systems	Computational Neuroscience
Artificial Intelligence	Computer Vision	Image Processing
Algorithms and Graph Theory	Machine Learning and Soft Computing	Wireless Ad-hoc and Sensor Networks
Cluster and Cloud Computing	Data Mining	Model-Driven Framework-oriented systems
Security and Privacy	Bioinformatics	

Department of Biotechnology	B.Tech. or B.E. or Equivalent degree in Biotechnology/Industrial Biotechnology/ Chemical Engineering/ Biochemical Engineering / Biomedical Engineering M.Tech/MS in Biotechnology/Industrial Biotechnology/ Bioinformatics / Biomedical Engineering Integrated M.Tech in Biotechnology / Industrial Biotechnology / Bioinformatics / Biomedical Engineering M. Sc. in Biotechnology / Biochemistry / Microbiology / Botany / Zoology / Bioinformatics with M.Tech in Biotechnology.

Research areas

Downstream Processing	Metabolic Engineering
Environmental Biotechnology	Systems Biology
Stem Cell Technology	Bioinformatics
Modeling and Simulation of Bioprocesses	Molecular & Biochemical Parasitology
Signaling Network and Cancer Biology	Biosensors & Bio nanotechnology
Biofuels and Bioprocess Engineering	Gene Regulation/Transcriptional Gene Regulation
Cancer System Biology	Cancer Gene Therapy

Department Mathematics	B.Sc. and M.Sc. / M.Phil. in Mathematics or equivalent degree
	Research areas
Fluid Mechanics	Operations Research / Optimization
Bio-Mechanics	Numerical Analysis

Department Physics	M.Sc. /M.Sc. (Tech) in Physics / Photonics / Electronics / Instrumentation / Atmospheric Science / Radio Physics / Materials Science/Nanotechnology or M.Tech. in relevant area.
	Research areas
Fiber Optic Sensing / Photonics/Optical Design	Nanomaterials / Thin films
Electronic Instrumentation / Biomedical Signal Processing/Sensors and Transducers	Nuclear Instrumentation
Tropospheric Radio Propagation	Swift Ion Beam Irradiation
Materials Science / Condensed matter Physics/Quantum Interference	Glass and glass Ceramics for Photonic Applications
Polymer Composites	Organic Electronic Devices
Liquid Crystals/Microfluidics/Emulsions	Solar cells/Fuel Cells
Nanophosphors	Biomaterials

Department Chemistry	B.Sc. and M.Sc. / M.Phil. in Chemistry or equivalent degree
	Research areas
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	

Department Humanities & Social Sciences	Post Graduate Degree in English with NET Qualification and having studied BA/B.Sc./B.Com.
Research areas	
British Literature	English Language Teaching

School of Management	Any graduate having Full Time M.B.A degree
Research areas	
Marketing	Human Resources
Finance	Economics

C) Ph.D. PROGRAM ON PART-TIME BASIS IN ALL DEPARTMENTS

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1. Part-time PhD program is open to:

(a) Persons working in National Research Laboratories / Govt. R&D organizations.
(b) Persons working in PSUs / Industries having an MOU with NIT, Warangal.
(c) Permanent faculty members of NIT, Warangal.
(d) JRFs/SRFs in CSIR/DST/Defense laboratories/Government R&D Organizations.

2. Eligibility Criterion is same as full time candidates given in Section-A above for all categories except that candidates for Part-Time program are exempted from GATE / NET score. In addition, the candidates applying for part time program needs to have the following experience.

(i) ME/M.Tech with at least 3 years experience having measurable research output.
(or)
(ii) BE/B.Tech. with at least 6 years experience having measurable research output.
(or)
(iii) Research Fellows with BE/B.Tech/ME/M.Tech./M.Sc or equivalent qualification, working in Research Projects of National Research Laboratories having MOU with NIT Warangal

The candidates selected for admission into Ph.D. program under Part time basis are not eligible to receive institute fellowship.

Residential and Other Requirements for Part time Candidates:

(a) For the candidates from National Research Laboratories / Government R&D organizations / Public Sector Units, the minimum residential requirement is one semester, which is to be completed at a stretch preferably immediately after joining. During this time the candidate completes the course work requirement.

(b) However, in case of candidates with very good research experience (not less than 10 years or more) in National Research Laboratories /Government R &D organizations/ Public Sector Units , with the special permission of the Doctoral Scrutiny Committee and approval of the Senate, the residential requirement may be waived completely. Nevertheless it is mandatory for such candidates also to complete the course Work for The prescribed number of credits on self-study mode, following all steps Like assignments, examinations etc., as prescribed for a regular course at NIT, Warangal.

(c) For the candidates of Ph.D. under part time, one guide from National Institute of Technology, Warangal and one guide from the parent organization are mandatory. Hence, the candidates applying for Ph.D. under part time must identify a suitable guide in his/her organization, take his/her written consent (in the proforma given) and must indicate the same in the application.

(d) The guide at the parent organization must possess Ph.D. qualification or sufficient research experience in the concerned area. In any case, the bio-data of the Research guide at the parent organization must accompany the written consent given by him.

(e) The candidates applying for Ph.D. under part-time must ensure that adequate facilities for doing research are available at his/her organization.

D) FEE STRUCTURE FOR FULL-TIME / PART-TIME :
DECEMBER 2017 SESSION ONLY

INSTITUTE FEE:

Sl. No.	Details	Amount (Rs.)
1.	**At the time of admission (One time payment)**	
	(a) Admission Fee	1,000.00
	(b) ID Card	100.00
	(c) Alumni Association Fee	2,000.00
	(d) Security Deposit / Lab./Library (Refundable)	4,000.00
	(e) Institute Development Contribution	10,000.00
	(f) Cooperative Stores	400.00
2.	*Tuition Fee (per semester)*	**7,500.00**
3.	Computer and Email (per semester)	500.00
4.	Other Fee (per semester)	1,600.00
	Total	**27,100.00**

Details of Other Fee (per semester) (2.C)

	Amount (Rs.)
(a) Medical Fee	350.00
(b) Students Club	150.00
(c) Games Fee	200.00
(d) Magazine Fee	50.00
(e) Students Library Fund	600.00
(f) Students Aid Fund	50.00
(g) Students Welfare Fund	50.00
(i) Film Club Charges	50.00
(j) Technical Association Fee	50.00
Total	**1,600.00**

HOSTEL FEE:

Sl. No.	Item	Fee in Rs.
1.	Hostel Seat Rent (per year)	2500 (Boys) & 2000 (Girls)
2.	Electricity & Water Charges (per year)	2,250
3.	Hostel Caution Deposit (at the time of admission)	10,000
4.	Hostel Maintenance Charges (per year)	2,750
5.	Mess Advance (per semester)	12,000
6.	Online fee in favor of Chief Warden, NIT Hostels	**29,500 (Boys) & 29000 (Girls)**

**Note*:*
1. Tuition fee will be waived for candidates belonging to SC/ST/PwD category
2. The selected candidates are required to submit the fee online.
3. The Original certificates will be returned only after completion of the course. The candidate is advised to keep sufficient number of Photocopies of the original certificates.
4. Accommodation to girls is subject to availability.

E) INSTRUCTION TO APPLY:

Ph.D. PROGRAM ON FULL-TIME BASIS:

(i) Application form is to be submitted online which is available at http://admissions.nitw.ac.in . All the necessary documents are to be uploaded online. Final application is to be downloaded and send it along with the relevant documents in hard copy to "Chairman (Admissions), NIT Warangal, Warangal-506004" superscribing the envelope with "Application for Ph.D program in the Department of -----------------". The proof of payment of registration fee (Rs.1000/- for UR/ OBC and Rs.500/- for SC/ST candidates) must accompany the application form. The link to pay registration fee through SBI i-collect is www.onlinesbi.com/sbicollect/icollecthome.htm .   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.

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

(iii) Check list of documents to be uploaded a long with the application

- Copy of SSC in support of Date of Birth
- Copy of Intermediate/(10+2) Certificate
- Copies of Provisional certificate / Degree Certificates and Marks Memos of the qualifying Examinations
- Attested copy of the caste certificate (in case of SC/ST candidates)
- For OBC candidates, OBC certificate issued after 1st April 2017 as per the format given in the Annexure-II only is acceptable.
- No Objection Certificate from the employer, if employed.
- Photograph on application form
- Copy of the Grade/Rank Card of GATE or NET or CAT or GMAT (as applicable)
- Fee payment receipt with transaction Number.
- Any other documents (List of publications (if any)

Ph.D. PROGRAM ON PART-TIME BASIS:

(i) Application form is to be submitted online which is available at http://admissions.nitw.ac.in All the necessary documents are to be uploaded online. Final application is to be downloaded and send it along with the relevant documents in hard copy to "Chairman (Admissions), NIT Warangal, Warangal-506004" superscribing the envelope with "Application for Ph.D program in the Department of ------------------, Part-Time". The proof of payment of registration fee (Rs.1000/- for UR/ OBC and Rs.500/- for SC/ST/PWD candidates) must accompany the application form. The link to pay registration fee through SBI i-collect is www.onlinesbi.com/sbicollect/icollecthome.htm . 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.

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- Attested copy of the caste certificate (in case of SC/ST candidates)
- For OBC candidates, OBC certificate issued after 1st April 2017 as per the format given in the Annexure-II only is acceptable.
- No Objection Certificate from the employer, if employed.
- Photograph on application form
- Fee payment receipt with transaction Number.
- Bio-data and written consent of Guide in the organization where the candidate is working as per Annexure-IV
- Any other documents (List of publications (if any)