



MAULANA AZAD

NATIONAL INSTITUTE OF TECHNOLOGY

INFORMATION BROCHURE

Ph.D. Admissions
2019-20

ACADEMIC SESSION
(July-Dec.2019)

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL (M.P.)

TABLE OF CONTENTS

S.No	Particulars	Page No.
1.	Admission Categories	3
2.	Department Offering Ph.D. Programmes	3
3.	Eligibility	3
4.	Seat Matrix	3-4
5.	Fee Structure & Mess Charges	4
6.	Application Procedure	5-6
7.	Teaching Assistance	6
8.	Documents Required	6-7
9.	Schedule	7
10.	Address for Communication	7

Note:

1. Detailed advertisement is available on the Institute Website <http://www.manit.ac.in>. **Candidates are advised to visit the institute website regularly for updates (if any). No individual communication via postal or e-mail shall be made regarding the written test by the institute.**
2. Applicants are advised to go through the institute's Ph.D. Ordinance and amendments as available on the institute website <http://www.manit.ac.in> for norms, rules and regulations.
3. Institute reserves the right to refuse admission to any candidate, or cancel the whole admission process, without assigning any reason.
4. In case of any ambiguity, typographical error or mistake, the decision of Director is final.
5. **All disputes related to admission are subject to Bhopal Jurisdiction only.**

1. ADMISSION CATEGORIES:

- i. Full Time Research Students.
- ii. Sponsored Full Time.
- iii. Project Staff (In all Department/Centers) (as per ordinance 10.1.1(3))
JRF working in the Institute under Externally Funded Projects from agencies such as CSIR, UGC, DST, DAE, DRDO etc.

2. DEPARTMENT OFFERING Ph.D. PROGRAMMES:

S.No	Department
1.	Civil Engineering
2.	Computer Science & Engineering
3.	Electrical Engineering
4.	Electronics & Communications Engineering
5.	Mechanical Engineering
6.	Chemical Engineering
7.	Materials & Metallurgical Engineering
8.	Energy Centre
9.	Biological Science & Engineering
10.	Architecture & Planning
11.	Physics (Physics, Nanoscience & Engineering under Department of Physics)
12.	Chemistry
13.	Mathematics (Mathematics, Computer Applications & Bioinformatics under Department of Mathematics)
14.	Humanities and Social Science
15.	Management Studies

3. ELIGIBILITY:

- i. Master's Degree in the relevant discipline with minimum 65% marks (CGPA 6.0) and Bachelors Degree with minimum 65% (CGPA 6.0), from a recognized University/ Institution. For reserved category student's i.e. SC/ST/PwD a relaxation of 5% (0.5 in CGPA) is applicable. Reservations are as per prevailing GOI norms.
- ii. Candidate should have GATE qualified or NET qualification.
- iii. The Syllabus of entrance test (Compulsory paper) in Mathematics and English will be given along with advertisement.

S. No.	STREAM	ESSENTIAL QUALIFICATION IN RELEVANT AREA
1.	Engineering	Master degree in Engineering with minimum of 65% or CGPA 6.0 and GATE qualified.
2.	Sciences	Master degree in Sciences/ Engineering with minimum of 65% or CGPA 6.0 and NET/GATE qualified.
3.	Architecture and Planning	Master degree in Architecture / Planning with minimum of 65% or CGPA 6.0 and GATE qualified.
4.	Humanities and Social Sciences	Master degree in Humanities / Social Sciences with minimum of 65% or CGPA 6.0 and NET qualified.
5.	Management	Master degree in Management /Engineering with minimum of 65% or CGPA 6.0 and NET/GATE qualified.
6.	Computer Applications	Master degree in Computer Applications / Engineering with minimum of 65% or CGPA 6.0 and NET/GATE qualified.

4. SEAT MATRIX:

S. No.	Department	OPEN	EWS	OBC-NCL	SC	ST	TOTAL
1.	Civil Engineering	10	1	6	3	2	22
2.	Computer Science & Engineering	8	1	5	2	1	17
3.	Electrical Engineering	6	1	4	2	1	14

4.	Electronics & Communications Engineering	8	1	4	2	1	16
5.	Mechanical Engineering	13	2	7	3	2	27
6.	Chemical Engineering	3	0	1	1	1	6
7.	Materials & Metallurgical Engineering	1	0	1	1	1	4
8.	Energy Centre	2	0	1	1	1	5
9.	Biological Science & Engineering	1	0	1	1	0	3
10.	Architecture & Planning	8	1	5	2	1	17
11.	Physics (Physics, Nanoscience & Engineering under Department of Physics)	1	0	1	1	0	3
12.	Chemistry	1	0	1	1	0	3
13.	Mathematics (Mathematics, Computers Applications, Bioinformatics under Department of Mathematics)	4	1	3	1	1	10
14.	Humanities & Social Sciences	1	0	1	1	0	3
15.	Management Studies	2	0	1	1	0	4
	Total	69	8	42	23	12	154

Note: The reservation of physically Handicapped (PwD) is 5% overall.

5. (a) FEE STRUCTURE:

Ph.D. FEE DETAILS 2019-20 without Hostel				
S.No.	Fee Details (Applicable to all Category)	1 st Semester (At the time Admission)	2 nd Semester Onwards	Annual
1.	Tuition Fee	7500.00	7500.00	15000.00
2.	Other Fees	18582.00	7048.00	25630.00
	Total:	26082.00	14548.00	40630.00
	Hostel Fees:			
	Hostel Maintenance Charges	7500.00	7500.00	15000.00
	Hostel Caution Money One time (Refundable)	5000.00	00	5000.00
	Hostel Electricity & Water Charges	3000.00	3000.00	6000.00
	Hostel Rent Single Occupant	10000.00	10000.00	20000.00
	Total PhD fee with Hostel facility	51582.00	35048.00	86630.00

- *Hostel facility will be available to all PG & PhD. Students hence HRA will not be given.*
- *Mess charges extra as per actual and also as per prevailing rates.*

6. APPLICATION PROCEDURE:

Applications are invited for Full Time Ph.D. Programme in the Departments under specialization listed in point 2:

- a) The application form can be downloaded from the Institute website <http://www.manit.ac.in>. Duly completed application form in the prescribed format will only be considered.

b) Completed form along with **non-refundable processing fee of Rs. 1500/- (Unreserved) and Rs. 1000/- for SC/ST/PwD candidates should be submitted to Assistant Registrar (Academic), MANIT Bhopal – 462003 upto 31st May 2019.** The payment of processing fee is to be done only through SBI online “**SBI Collect**” into the account of the Director, MANIT, Bhopal. The envelope must contain the following header, “Application form for Ph.D. Admission in Department”. Applicant must submit separate application form along with separate processing fees, if he/she wishes to apply in different departments. Applications received after due date will not be entertained.

No individual communication via postal or e-mail shall be made regarding the written test by the institute. The schedule of the Written Test will be displayed on the institute website. Candidates are advised to visit the institute website regularly for further updates.

c) **Selection will be based on written test conducted at Institute level.** For each department, admission test of two hours (02 hr) duration containing three sections of total 200 marks with the following structure will be conducted in the Institute:

Section 1: English (50 Marks, 30 Minutes, 25 Questions).

Section 2: Mathematical Ability (50 Marks 30 Minutes, 25 Questions).

Section 1 and 2 of written test of 1 hour is common for all the departments, Section 3 written test of 1 hour will be conducted separately for each department. The Syllabus of Mathematics and English is attached.

Section 3: Concerned Subject (100 Marks, 60 Minutes, 50 Questions). Copies of Section 3 will only be evaluated when student will attain minimum total 30 marks in Section 1 and Section 2 together. Branch wise Merit list will be prepared on the basis of total marks of Section 3 only.

For Architecture & Planning, Bio-informatics, Humanities, Management, Biological Sciences and Chemistry a separate examination of

Mathematics will be conducted. **A relaxation of 5% in minimum normalized cut off in the written test will be given to SC/ST/PwD Candidates.**

There is negative marking for wrong answers. One fourth marks will be deducted for every wrong answer i.e. **4R-W**.

For section 3 written tests, GATE/NET syllabus of respective discipline will be applicable.

No TA/DA will be paid for attending the written test.

d) Merit List Preparation:

- Weightage of written test - 50%
- Weightage of UG - 10%
- Weightage of PG - 10%
- Weightage of GATE/NET marks - 30%

7. TEACHING ASSISTANCE: Selected candidates shall get Teaching Assistantship as per Ph.D. ordinance/amendments and Institute norms. Hostel facility available hence HRA will not be given to student.

(Selected Candidates will be eligible for Teaching Assistance at the approved rates and guidelines as notified by MHRD from time to time. This shall be awarded to the students of this category on a semester-to-semester basis depending on semester registration, satisfactory academic performance of the scholar as per Ph.D. Ordinance Clause 10.2.2). Selected candidates will be required to assist in teaching in the department equivalent to 8 hrs per week.

8. DOCUMENTS REQUIRED:

The candidates are required to bring following documents in original at the time of admission (Please enclose self attested photocopy of the following documents along with the application form).

- a. 10th Class Certificate & Marksheet
- b. 12th Class Certificate & Marksheet
- c. Graduation Marksheet All semester
- d. Graduation Degree Certificate
- e. Post Graduation Marksheet all semester
- f. Post Graduation Degree Certificate
- g. Character Certificate from the Institute last attended
- h. GATE score card / NET qualified certificate.
- i. EWS/OBC/SC/ST/PH Certificate , If applicable
- j. OBC – NCL certificate issued on or after 01st April, 2019 in the enclosed format (**Annexure-I**)
- k. Transfer Certificate from the Institute last attended.

- i. Migration Certificate from the University last attended (If appearing in qualifying examination then completion certificate is required from the Institute).
- m. SBI Collect receipt copy.

9. SCHEDULE:

(Institute reserves the right to change the schedule as per the requirement)

S.No.	Schedule	Schedule date
1.	Last Date of form submission	31 st May, 2019
2.	Date of written test	23 rd June, 2019
3.	Declaration of Result on institute website	1 st July, 2019
4.	Admission Date	14 th July, 2019
5.	Start of Course work	17 th July, 2019

10. ADDRESS FOR COMMUNICATION:

Assistant Registrar (Academics)

Maulana Azad National Institute of Technology (MANIT),

Near Link Road no. 3,

Bhopal (MP) 462003

Institute Website-www.manit.ac.in

DIRECTOR

**(A) Mathematics Syllabus for Ph.D. Entrance Exam
(Non-Engineering Departments)**

**(Architecture, Chemistry, Bio Informatics, Humanities,
Management (MBA), Bio Engineering)**

Logical and quantitative aptitude, Matrix and its basic operations, Solution of Simultaneous linear equations, Data collection, presentation and visualizations, Mean, median, mode, Standard deviation, Standard error, correlation and regression, probability, Differentiation and Integration and their basic applications. Differential equation first order first degree.

**(B) Mathematics Syllabus for Ph.D. Entrance Exam
(Engineering Departments)**

**(Civil, Mechanical, Electrical, ECE, CSE, MSME, Chemical, Physics,
Nanotechnology, Mathematics, MCA, Energy)**

Algebra of matrices; Inverse and rank of a matrix; System of linear equations; Symmetric, skew-symmetric and orthogonal matrices; Determinants; Eigenvalues and eigenvectors; Diagonalization of matrices; Cayley-Hamilton Theorem.

Calculus: Functions of single variable: Limit, continuity and differentiability; Mean value theorems; Indeterminate forms and L'Hospital's rule; Maxima and minima; Taylor's theorem; Fundamental theorem and mean value-theorems of integral calculus; Evaluation of definite and improper integrals; Applications of definite integrals to evaluate areas and volumes.

Functions of two variables: Limit, continuity and partial derivatives; Directional derivative; Total derivative; Tangent plane and normal line; Maxima, minima and saddle points; Method of Lagrange multipliers; Double and triple integrals, and their applications. Taylor's series;

Fourier series; Fourier Transforms; Laplace Transforms.

Probability: Random variables. Uniform, normal, exponential, Poisson and binomial distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.

Complex Variables: Analytic functions; Cauchy-Riemann equations; Line integral, Cauchy's integral theorem and integral formula; Taylor's series and Laurent series; Residue theorem and its applications.

Numerical Methods

Solution of systems of linear equations using LU decomposition, Gauss elimination and Gauss-Seidel methods; Lagrange and Newton's interpolations, Solution of polynomial and transcendental equations by Newton-Raphson method; Numerical integration by trapezoidal rule, Simpson's rule and Gaussian quadrature rule; Numerical solutions of first order differential equations by Euler's method and 4th order Runge-Kutta method.

Ordinary Differential Equations

First order equations (linear and nonlinear); higher order linear differential equations with constant coefficients; second order linear differential equations with variable coefficients; Method of variation of parameters; Cauchy-Euler equation.

Ph.D. Entrance Exam Syllabus (General English)

The Ph.D. Entrance exam syllabus broadly includes the following components of grammar:

1. Articles (Use of a, an and the)
2. Parts of Speech
3. Subject-Verb Agreement
4. Use of Tenses
5. Active and Passive Voice
6. Direct and Indirect Speech
7. Infinitive and Gerunds
8. Use of Prepositions
9. Punctuation
10. Common Errors, Correction of Sentences
11. Vocabulary (Phrasal verbs, Idioms, Synonyms, Antonyms, One-word Substitutes etc.)