

DEPARTMENT OF MATERIAL SCIENCE AND ENGINEERING

Dated:-24.04.2019

Subject: Short-listing criteria for M.Tech. admission (MTech Programme in Polymer Science and Technology) 2019-20 are as follows:

I. For candidates with background in Chemistry

- **General Category/OBC students/EWS:** GATE score of 350 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at BTech/MSc level.
- **SC/ST/PH students:** GATE score of 280 or higher and 55% aggregate or 5.55 CGPA on a 10 point scale at BTech/MSc level

II. For candidates with background in Physics, Polymer and Rubber Technology, Plastic Technology, Textile and Fibre Science, Material Science and Engineering

- **General Category/OBC students/EWS:** GATE score of 500 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at BTech/MSc level.
- **SC/ST/PH students:** GATE score of 400 or higher and 55% aggregate or 5.55 CGPA on a 10 point scale at BTech/MSc level

III. For candidates with Chemical Engineering

- **General Category/OBC students/EWS:** GATE score of 600 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at BTech/MSc level.
- **SC/ST/PH students:** GATE score of 480 or higher and 55% aggregate or 5.55 CGPA on a 10 point scale at BTech/MSc level

IV. For candidates with Mechanical, Production and Industrial Engineering background

- **General Category/OBC students/EWS:** GATE score of 675 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at BTech/MSc level.
- **SC/ST/PH students:** GATE score of 540 or higher and 55% aggregate or 5.55 CGPA on a 10 point scale at BTech/MSc level

Admission of part-time candidates will be as per institute rules. However, the final admissions will be through personal interviews.

The written test for admission is fixed for 20th May, 2019 from 12:00-01:00PM in LH121. The personal interview for Part-time/ Sponsored (Full Time) candidates will be held on 21th May, 2019 starting from 09:30 AM in Room no: TX-202 (DMSE Committee Room).

List of candidates shortlisted for written test/ Interview MTech Programme in Polymer Science and Technology

S. No.	Application Ref. No.	Name
1.	PG-192001-4731	AMIT SHARMA
2.	PG-192001-6327	Debarchan Basu
3.	PG-192001-12141	Naman Narayan Pathak
4.	PG-192001-17142	Vineet Kumar
5.	PG-192001-1948	Vishnu Dutt
6.	PG-192001-7093	Biswajit Koley
7.	PG-192001-2524	Samir Mandal
8.	PG-192001-1779	Rajarshi Saha
9.	PG-192001-1939	Neha Pradhan
10.	PG-192001-6383	Yadav Avadhesh Anantram
11.	PG-192001-25002	Rajarshi Basu
12.	PG-192001-2203	Dipanjan Maity
13.	PG-192001-2591	Deepak Tripathi
14.	PG-192001-5687	Rudrani Biswas
15.	PG-192001-3086	Sreyashi Das
16.	PG-192001-12919	Rohan Tom S
17.	PG-192001-3297	Ishita Ghosh
18.	PG-192001-3404	Prakhar Jyoti
19.	PG-192001-16130	DEEPALI PRAJAPATI
20.	PG-192001-16093	Dipayan Tewari
21.	PG-192001-20696	Jay Pala
22.	PG-192001-30003	Bal Kishan Kasaudhan
23.	PG-192001-5146	Preeti Sharma
24.	PG-192001-5363	Mohammad Shoeb Ansari

25.	PG-192001-12152	Subhendu pramanik
26.	PG-192001-10600	Paulomi Singh
27.	PG-192001-5859	Ashish Garg
28.	PG-192001-18092	Atri Mallick
29.	PG-192001-22913	Mansi
30.	PG-192001-7218	Harshat Arya
31.	PG-192001-7423	Shruti Narendra Ghadge
32.	PG-192001-7489	AMAR SRIVASTAVA
33.	PG-192001-7475	Himanshu Singh
34.	PG-192001-7955	Pallavi Singh
35.	PG-192001-8012	Shreyans Garg
36.	PG-192001-8054	Priyanka Gupta
37.	PG-192001-8375	Santosh Beura
38.	PG-192001-19081	Dokuparthi Bhanu Kiran
39.	PG-192001-8571	SELVA BALA V
40.	PG-192001-12096	Arnab Goswami
41.	PG-192001-8873	Shubhanjali Umrao
42.	PG-192001-8893	Parayana Shree
43.	PG-192001-8970	Sheikh Haider Ali
44.	PG-192001-9017	Nooris Saeed Ansari
45.	PG-192001-12473	Akshay Singh Dod
46.	PG-192001-16069	Sujoy Mandal
47.	PG-192001-10511	Vinay Maithani
48.	PG-192001-13641	Suman Acharya
49.	PG-192001-15016	Mohd Umair Khan

50.	PG-192001-12061	Shivani Mongsshivani631@gmail.com
51.	PG-192001-13695	Suddha Swatta Roy
52.	PG-192001-15658	Vishal Kumar
53.	PG-192001-13088	Deepak Kumar
54.	PG-192001-13921	Shubham Tiwari
55.	PG-192001-13714	Santosh Beura
56.	PG-192001-14445	Sarthak Sharma
57.	PG-192001-14786	Anjan Kumar Nandy
58.	PG-192001-15272	Ankit
59.	PG-192001-16051	Man Mohan
60.	PG-192001-26786	Alankrita Singh
61.	PG-192001-18270	Vishva Manish Adhia
62.	PG-192001-19104	Sumit Mondal
63.	PG-192001-19097	Gourav Kotriwar
64.	PG-192001-21337	Ritesh Upadhyay
65.	PG-192001-32881	Anshu Kumari
66.	PG-192001-23327	Abhishek Ranjan Kumar
67.	PG-192001-27710	Vikash Gupta
68.	PG-192001-24918	Shubhang Dubey
69.	PG-192001-24151	Nelson Manvel Dias
70.	PG-192001-24959	Deepanshu Jain
71.	PG-192001-30028	Pooja Kumari
72.	PG-192001-25513	Gajanan Maroti Wankhede
73.	PG-192001-27105	INDRAJEET KUMAR
74.	PG-192001-27298	Gangalakshmi V

75.	PG-192001-27454	Vineeth James
76.	PG-192001-27691	Vivek James
77.	PG-192001-28975	Akash Kumar Jha
78.	PG-192001-29154	Aridaman
79.	PG-192001-29753	Yashvant Rao
80.	PG-192001-30608	Vandana Singh
81.	PG-192001-29957	Vishwas Singh
82.	PG-192001-30389	Srikanth Avasarala
83.	PG-192001-32861	Dhrumil Jitendrabhai Prajapati

If some applicant is fulfilling the Selection criteria, he/she should contact immediately and can appear for the written test/ interview.

M.Tech in Polymer Science and Technology

**Syllabus for the written test on 20th May 2019
in LH - 121 room (Lecture Hall Complex)**

Section 1: Chemistry of high polymers

Monomers, functionality, degree of polymerizations, classification of polymers, glass transition, melting transition, criteria for rubberiness, polymerization methods: addition and condensation; their kinetics, metallocene polymers and other newer techniques of polymerization, copolymerization, monomer reactivity ratios and its significance, kinetics, different copolymers, random, alternating, azeotropic copolymerization, block and graft copolymers, techniques for copolymerization- bulk, solution, suspension, emulsion.

Section 2: Polymer Characterization

Solubility and swelling, concept of average molecular weight, determination of number average, weight average, viscosity average and Z-average molecular weights, polymer crystallinity, analysis of polymers using IR, XRD, thermal (DSC, DMTA, TGA), microscopic (optical and electronic) techniques.

Section 3: Synthesis and properties

Commodity and general purpose thermoplastics: PE, PP, PS, PVC, Polyesters, Acrylic, PU polymers. Engineering Plastics: Nylon, PC, PBT, PSU, PPO, ABS, Fluoropolymers Thermosetting polymers: PF, MF, UF, Epoxy, Unsaturated polyester, Alkyds. Natural and synthetic rubbers: Recovery of NR hydrocarbon from latex, SBR, Nitrile, CR, CSM, EPDM, IIR, BR, Silicone, TPE.

Section 4: Polymer blends and composites

Difference between blends and composites, their significance, choice of polymers for blending, blend miscibility-miscible and immiscible blends, thermodynamics, phase morphology, polymer alloys, polymer eutectics, plastic-plastic, rubber-plastic and rubber-rubber blends, FRP, particulate, long and short fibre reinforced composites.

Section 5: Polymer Technology

Polymer compounding-need and significance, different compounding ingredients for rubber and plastics, cross-linking and vulcanization, vulcanization kinetics.

Section 6: Polymer rheology

Flow of Newtonian and non-Newtonian fluids, different flow equations, dependence of shear modulus on temperature, molecular/segmental deformations at different zones and transitions. Measurements of rheological parameters by capillary rotating, parallel plate, cone-plate rheometer. Visco-elasticity-creep and stress relaxations, mechanical models, control of rheological characteristics through compounding, rubber curing in parallel plate viscometer, ODR and MDR.

Section 7: Polymer processing

Compression molding, transfer molding, injection molding, blow molding, reaction injection molding, extrusion, pultrusion, calendaring, rotational molding, thermoforming, rubber processing in two-roll mill, internal mixer.

Section 8: Polymer testing

Mechanical-static and dynamic tensile, flexural, compressive, abrasion, endurance, fatigue, hardness, tear, resilience, impact, toughness. Conductivity-thermal and electrical, dielectric constant, dissipation factor, power factor, electric resistance, surface resistivity, volume resistivity, swelling, ageing resistance, environmental stress cracking resistance.

The question paper will be with Multiple Choice Questions

Short-listing criteria for M.Tech. admission (M.Tech Programme in Materials Engineering) 2019-20

I. For candidates with background in Metallurgy/Materials Engineering discipline

General Category/OBC students/EWS:

GATE score of 425 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at B.Tech/ B.E. level.

SC/ST/PH students:

GATE score of 350 or higher and 55% aggregate or 5.5 CGPA on a 10 point scale at B.Tech/ B.E. level.

II. For candidates with background in Mechanical Engineering discipline

General Category/OBC students/EWS:

GATE score of 675 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at B.Tech/ B.E. level.

SC/ST/PH students:

GATE score of 600 or higher and 55% aggregate or 5.5 CGPA on a 10 point scale at B.Tech/ B.E. level.

III. For candidates with background in Ceramics Engineering discipline

General Category/OBC students/EWS:

GATE score of 425 or higher and 60% aggregate or 6.00 CGPA on a 10 point scale at B.Tech/ B.E. level.

SC/ST/PH students:

GATE score of 350 or higher and 55% aggregate or 5.5 CGPA on a 10 point scale at B.Tech/ B.E. level.

IV. For Part-time and Sponsored (full-time) candidates in Disciplines of Qualifying Degree

The short-listing will be as per the institute's minimum qualification requirement. **However, the final admission will be through personal interviews.**

The written test for Short-listed full-time M.Tech candidates is on 20th May 2019 from 10:00 to 11:00 am in Room no.: LH-121 (Lecture Hall Complex).

The personal interviews for Part-time/Sponsored (full-time) candidates is on 21st May 2019 at 10:00 am in Room no.: TX – 202 (DMSE Committee Room), 1st Floor, Materials Science and Engineering.

List of candidates shortlisted for written test/ Interview MTech Programme in Materials Engineering

S. No	Application No.	Name
1	PG-192001-31391	Vaibhav Singh Rajput

2	PG-192001-22641	Ashish Kumar
3	PG-192001-21982	Prince Kumar Maurya
4	PG-192001-8644	Safal Sharma
5	PG-192001-5669	Devesh Kumar Jaiswal
6	PG-192001-15146	Pedada Sudhakiran
7	PG-192001-19220	Vaibhav Malik
8	PG-192001-17340	Kumar Vibham
9	PG-192001-24190	Mula Nikhil
10	PG-192001-17359	Kumar Shubham
11	PG-192001-23649	Aryan
12	PG-192001-7519	Mahesh Birle
13	PG-192001-14100	Abhigna Goparaju
14	PG-192001-2431	Deepak Tripathi
15	PG-192001-25458	Tejasva Vashistha
16	PG-192001-31288	Tejasva Vashistha
17	PG-192001-19929	Bejjipurapu Akhil
18	PG-192001-25044	Abhishek Kumar
19	PG-192001-22527	Aditya Tiwari
20	PG-192001-25293	Gaurav Laxman Mapari
21	PG-192001-27717	Aditi Manikpuri
22	PG-192001-28569	Ashish Kuamr Gouda
23	PG-192001-22160	Brajendu Prasad Patnaik
24	PG-192001-19605	Pritiman Mohapatra
25	PG-192001-28651	Deepak Kumar Singh
26	PG-192001-21510	Shubham Sisodia
27	PG-192001-22910	Syanteka Chakraborty
28	PG-192001-4195	UJJWAL KUMAR SINHA
29	PG-192001-23529	Nimish Khandelwal
30	PG-192001-3721	Sweety Maravi
31	PG-192001-2306	Debottam Datta
32	PG-192001-3394	Prakhar Jyoti
33	PG-192001-23400	Gaurav Dixit
34	PG-192001-24064	Kumar Shandilya
35	PG-192001-26687	P N Shivangi
36	PG-192001-26156	Amit Ranjan Kumar
37	PG-192001-27789	Faiz Ali
38	PG-192001-18071	Lokesh Singh
39	PG-192001-29511	RAKESH RAJ CHIKKA
40	PG-192001-19019	Sudhansu Maharana
41	PG-192001-14259	Radha Yanamandra
42	PG-192001-25546	Alka Jangid
43	PG-192001-11731	NAVEEN KOLLURU
44	PG-192001-22899	Monish Kumar V r
45	PG-192001-3957	Vivek Gupta
46	PG-192001-23138	Navanit Kumar
47	PG-192001-4475	Anirban Ghosh
48	PG-192001-24588	Vibha Sharma
49	PG-192001-4308	Punam Pragya

50	PG-192001-16340	Rashid Mumtaz
51	PG-192001-31778	Sandeep Kushwaha
52	PG-192001-10641	Bhawesh Chhaged
53	PG-192001-20258	Biswaroop Burman
54	PG-192001-27538	Keshav Kumar Rai
55	PG-192001-13944	TUHIN ROY CHOWDHURY
56	PG-192001-21764	Onkar Anil Khadke
57	PG-192001-30207	Prantosh Das
58	PG-192001-10603	Kuldeep Kushwaha
59	PG-192001-18960	Harishankar
60	PG-192001-3139	Sonika Sharma
61	PG-192001-2176	Deepak Mehra
62	PG-192001-7400	Anurag Kothari
63	PG-192001-2915	Aritra Roy Choudhury
64	PG-192001-11335	Shreyansh Agrawal
65	PG-192001-15082	Saurabh Rajesh Patil
66	PG-192001-5842	Ashish Garg
67	PG-192001-6088	Yash Gopal Mittal
68	PG-192001-9660	Monika Mandloi
69	PG-192001-25396	Nagmani Bhardwaj
70	PG-192001-23154	Puneet Bhardwaj
71	PG-192001-8785	Navendu Singh
72	PG-192001-31284	Akash Bhagavant Sathe
73	PG-192001-31908	Budi Bharath Kumar
74	PG-192001-4146	Vikas Kumar Maurya
75	PG-192001-12923	Ankan Kumar Ray
76	PG-192001-32370	Sonelal Yadav
77	PG-192001-7537	Shekhar Singh
78	PG-192001-3495	Piyush Chand
79	PG-192001-2782	Gunda Prashanth Kumar
80	PG-192001-25235	Kishan Kumar Soni
81	PG-192001-25114	Ashish
82	PG-192001-31827	Shivam Sharma
83	PG-192001-22605	Keyur Gandhi
84	PG-192001-7717	Vandana Singh
85	PG-192001-29054	Vandana Singh
86	PG-192001-16918	Vismay Vithalrao Kulkarni
87	PG-192001-9191	Vaibhav Pathak
88	PG-192001-12970	Rajat Joshi
89	PG-192001-26326	Shubham Khuntamar
90	PG-192001-19583	Ainulla Khan
91	PG-192001-24951	Deepanshu Jain
92	PG-192001-25390	Nitin Kumar
93	PG-192001-20813	Rahul Sharma
94	PG-192001-11306	Rajdeep Shankar Pawar
95	PG-192001-21872	Priyangshu Saharia
96	PG-192001-25297	Anuj Gulati

97	PG-192001-23691	Meraj Ahmad
98	PG-192001-20469	Shikhar Varshneya
99	PG-192001-3107	Ishan Arora
100	PG-192001-6472	Adil Fazal
101	PG-192001-2840	Priyadarshan
102	PG-192001-29393	Vineet Kumar
103	PG-192001-7521	Kudali Satish Tarun
104	PG-192001-6876	Deepanshu Verma
105	PG-192001-16632	Venakata krishna subhash Tadala
106	PG-192001-8105	LAUREB RAO
107	PG-192001-25052	Archit
108	PG-192001-12623	Suraj Goala
109	PG-192001-15617	Ankit
110	PG-192001-8088	Kundan Kumar Singh
111	PG-192001-31647	Prateek Gupta
112	PG-192001-13155	Ankit Gupta
113	PG-192001-32515	SHANTANU TYAGI
114	PG-192001-2555	VIVEK KUMAR
115	PG-192001-25461	Utkarsh Srivastava
116	PG-192001-7616	Sakshi Kanoje
117	PG-192001-17559	Srijan Kumar
118	PG-192001-0663	Deepak Nagar
119	PG-192001-27197	Kundan Kumar Tiwary
120	PG-192001-8149	Pallavi Singh
121	PG-192001-25079	Mohammad Arshad Raza
122	PG-192001-14658	Tapesh Kumar
123	PG-192001-10852	HARI OM BAIRWA
124	PG-192001-1023	Dinesh
125	PG-192001-26399	Ravi Gunjan
126	PG-192001-4412	Subhadip Bhandari
127	PG-192001-11553	Soham Mukherjee
128	PG-192001-27766 (Part-time)	Yogesh Kumar
129	PG-192001-24331 (Part-time)	Binit Kumar
130	PG-192001-0109	Amit Gupta
131	PG-192001-27083	Arpit Kumar Gahlot

If some applicant is fulfilling the Selection criteria, he/she should contact immediately and can appear for the written test/ interview.

Note that the selected part-time and sponsored (full-time) candidates in the above list have to appear for the personal interview on 21st May 2019 at 10:00 am in Room no.: TX – 202 (DMSE Committee Room), 1st Floor, Materials Science and Engineering.

M.Tech in Materials Engineering

**Syllabus for the written test on 20th May 2019 from 10:00 to 11:00 am
in LH - 121 room (Lecture Hall Complex)**

Structure of Solids: atomic and inter-atomic bonding, crystal structure and imperfection in solids.

Properties of Materials: Mechanical, chemical, electrical and magnetic properties of metals, ceramics and polymers.

Processing of Materials: Thermodynamics basics, Phase diagrams and phase transformation of metallic systems, fabrication and processing of metals, polymers and ceramics.

Performance of Materials: Creep, fatigue, failure and corrosion of metals, ceramics, polymers, and composites (including fiber reinforced structure, sandwich panels, and wood).

Mathematics: Linear Algebra: Algebra of matrices; Inverse and rank of a matrix; System of linear equations; Symmetric, skew-symmetric and orthogonal matrices; Determinants; Eigenvalues and eigenvectors; Diagonalisation of matrices. 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. Calculus: Functions of two variables: Limit, continuity and partial derivatives; Directional derivative; Total derivative; Tangent plane and normal line; Maxima, minima and saddle points; Double and triple integrals, and their applications. Curvefitting, Plotting graphs of simple mathematical functions.

The question paper will be with Multiple Choice Questions

Hostel Accomodation

- 1 Candidates coming for Test/Interview for admission to various programmes in the Institute, will be provided accomodation in the Hostels on sharing basis on payment of Rs. 400/-per day (lodging & boarding) as detailed below. The bedding is not provided and the candidates have to make their own arrangement for bedding. However, the Caretaker of concerned hostel will help to arrange bedding @ 50/- (per set) per day. The Payment shall be made by way of **Demand Draft** drawn in favour of “**Deans Discretionary Fund, IIT Delhi.....(hostel name) Hostel**”

S. No.	Boys/Girls	Hostel Name
1	FOR BOYS	Udaigiri
2	FOR GIRLS	Himadri