

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
CENTRE FOR URBAN SCIENCE AND ENGINEERING



**MASTER'S IN URBAN DESIGN AND
ENGINEERING PROGRAMME**

INFORMATION BROCHURE

&

APPLICATION FORM

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Application Form

MUDE ADMIT CARD

1. The Institute

The Indian Institute of Technology Bombay is one of the twenty three Indian Institutes of Technology in the country set up with the objectives of making available the facilities for higher education, research and training in various fields of Science and Technology. Indian Institute of Technology Bombay was established in 1958 with the co-operation and participation of the erstwhile Govt. of USSR under UNESCO's Technical Assistance Programme.

The Institute is located at Powai on a campus spread over about 480 acres amidst picturesque surroundings with Vihar and Powai lakes on either side. At present, it has several science and technology Departments, a Department of Humanities and Social Sciences (HSS) and fifteen interdisciplinary groups/ centers/ schools which offer various undergraduate, postgraduate and doctoral programmes of studies.

2. Student Amenities

The Institute is mostly residential and currently has 16 hostels for students. Each hostel is an independent entity with its own mess and recreation facilities. The students' Gymkhana is well equipped to provide facilities for sports, cultural programmes, National Social Service, NCC, and other extra-curricular activities. The various clubs at the Gymkhana and the Student Activity Centre encourage students to develop their talents in painting, music, photography, modeling, fabrication, etc. The Institute also has good swimming pools on the campus.

3. The MUDE Programme

About the Centre for Urban Science and Engineering

The Centre for Urban Science and Engineering is an interdisciplinary centre for research, teaching and skilled manpower development with the primary mandate of creating innovative and holistic solutions to deliver urban services related to housing, infrastructure, energy, health and cultural enlightenment, while mitigating the effects of natural disasters and climate change. The centre combines the latest advances in science and technology with sustainable, equitable and human friendly design, to create new products and solutions that would ultimately lead to the betterment of life for the rapidly increasing urban population in the developing world.

About MUDE Programme

The aim of the Master's in Urban Design and Engineering (MUDE) programme is to take an interdisciplinary approach in teaching with greater emphasis on practical problem solving. At present, there are no prevailing programs in India to adopt this pedagogical approach and hence at CUSE we decided to start Master's in UDE.

Goals:

1. To expose students to urbanization challenges and prepare them for bringing improvement in of quality of urban life
2. To impart interdisciplinary approach and holistic thinking in the students curriculum
3. To develop human resource in the field of Urban Design and Engineering

Outcomes

The program will create a team of urban professionals who on one hand know the planning and on the other side will also know design challenges of urban infrastructure. Such human resource will help the cities to develop on smarter and sustainable path. Apart from the human resource creation, the program in UDE will have following additional benefits for various stakeholders:

- Creation of Urban Knowledge Repositories
- Providing decision support to national/state/city agencies
- Exploiting Informatics – Use information and algorithms to improve quality of life and achieve Sustainable Development Goals (SDGs)
- Capacity building in Urban Local Bodies (ULBs) and Training of Human Resources

4. Eligibility

Minimum First Class 60 % (55% marks for SC/ST) in B.Tech./B.E. or equivalent degree in any branch of Engineering,

OR

Minimum First Class 60 % (55% marks for SC/ST) in Bachelor's degree in Architecture, Urban Planning or related disciplines;
AND Valid GATE score in any subject.

Admissions Criteria:

- Percentile cutoffs of GATE across will be identical across disciplines
- 70% weighting to GATE scores
- 30% weighting to Internal Assessment consisting of Test and Interview
- 2 years work experience is required for a student admitted under “Sponsored category in lieu of GATE qualification

5. Total Number of Seats: 20 intake (10 TAs + 10 Government /Industry/ULB Sponsored)

6. Structure Programme Duration, Credits and Course Structure of the Master’s in UDE

- Total 170 credits
- 4 semesters

Semester I

- 2 Core courses –
US602 - Fundamentals of Urban Science and Engineering
&
US607 - Sustainability Assessment of Urban Systems
- 1 Urban Design and Engineering Lab (UDE)
- 3 Electives
- Seminar
- Communications skills

Semester II

- 1 Core course (US603 - Research Methods in Urban Science)
- UDE Studio**
- 2 Electives
- 1 Institute Elective

Targeted Internship [May-June] – to be determined by CUSE

Semester III

- Master's Project 1

Semester IV

- Master's Project 2

Note: **UDE Lab is preferably completed successfully before the UDE studio

List of Core Courses (offered by CUSE)

US602	Fundamentals of Urban Science and Engineering
US603	Research Methods in Urban Science
US607	Sustainability Assessment of Urban Systems

List of Elective Courses (offered by CUSE)

Sr. No.	Course Code	Course Name
1	US 601	Urban Geomatics and Analytics
2	US 604	Management Techniques for Urban Systems
3	US 605	Introduction to Building: Functional Design and Science
4	US 606	Urban Environmental Infrastructure
5	US608/CE 639*	Green Building Design
6	US 609/CE 649*	Introduction to Urban Design
7	US 610	Design for Sustainable Development and Urbanization
8	US 613	Urban Planning in India: Theory, challenges and Approaches

Notes: *Cross-listed courses

2 out of the 5 Electives taken must be Department Electives from the courses listed above.

General Electives

Department of Civil Engineering

1. CE-609 3-0-0-6 Transportation Infrastructure systems
2. CE-751 3-0-2-8 Urban transportation systems planning
3. CE-605 3-0-0-6 Applied statistics
4. CE 768 Urban Water and Environmental Management

Department of Computer Science and Engineering

5. CS 620 New Trends in IT
6. CS 671 ICT for Socio-economic Development

Centre for Environmental Science and Engineering

7. ES 658 Environmental Change and Sustainable Development
8. ES 635 – Air Pollution Science and Engineering
9. ES 645 – Environmental Law and Policy

CSRE

10. GNR 630 Introduction to Geospatial Technologies.
11. GNR603 Principles of Remote Sensing
12. GNR605 Principles of Geographic Information Systems
13. GNR607 Principles of Satellite Image Processing
14. GNR623 GPS: Principles and Applications

HSS

15. HS 601 Development Planning & Policies: Issues & Alternatives
16. HS 606 Environmental Planning & Development

DESE

17. EN 601 Non-conventional Energy Source
18. EN 606 Energy Resources, Economics & Environment
19. EN 607 Energy Management
20. EN 624 Conservation of Energy in Buildings
21. EN 632 Waste to Energy

SOM

22. MGT 637 Project Management

Institute Electives:

The Institute Elective has to be taken from amongst those available as Institute Electives (IE) from the departments listed below:

- **Department of Civil Engineering**
- **Department of Computer Science and Engineering**
- **Centre for Environmental Science and Engineering**
- **CSRE**
- **HSS**
- **DESE**
- **SOM**

7. Fees and Deposits

Details of the fees for the first semester and other charges to be paid while accepting the offer of admission. (Subject to upward revision)

Particulars	Fees Payable (Rs.)			
	GN/EWS/OBC-NC		SC/ST/ PwD	Institute Staff
	Group I	Group II		
A) One time payment at the time of Admission				
1. Admission fee	2200	2200	2200	2200
2. Graduation Transcript Fees	500	500	500	500
3. Medical Examination	400	400	400	0
4. Provisional Certificate	500	500	500	500
5. Student Welfare Fund	1000	1000	1000	1000
6. Modernisation & Upgradation	2500	2500	2500	2500
7. Identity Card	500	500	500	00
Total (A)	7600	7600	7600	6700
B) Per Semester Fee				
1. Tuition Fee- Statutory fees	5000##	25000##	0	0
2. Examination Fee	1000	1000	1000	1000
3. Registration Fee	750	750	750	750
4. Gymkhana Fee	1750	1750	1750	0
5. Student Benevolent Fund	500	500	500	500
6. Medical Fee	1500	1500	1500	0
*7. Hostel Rent	2000	2000	2000	0
*8. Elect. & Water Charges.	3000	3000	3000	0
*9. Hostel Establ. Charges	3000	3000	3000	0
*10. Mess Establ. Charges	1400	1400	1400	0
11. Student Accident Insurance Fund (SAIF)	200	200	200	0
Total (B)	20100	40100	15100	2250
C) Deposits (Refundable) to be paid at the time of Admission				
1. Institute Security Deposit	1000	1000	1000	0
2. Library Security Deposit	1000	1000	1000	0
*3. Mess Security Deposit	1000	1000	1000	0
Total (C)	3000	3000	3000	0
Total Fees (A+B+C)	30,700	50,700	25,700	8,950

* Students not staying in Hostel are exempted from the payment of Hostel fees.

\$ To be increased 10% every year, rounded up in multiple of 50.

Tuition Fee - Statutory Fees - Under Revision

Candidates opted for Hostel Accommodation have to submit the Mess Advance of Rs.27,000/- by ONLINE payment/Net Banking as per the link provided in the online admission portal, at the time of joining the Institute hostel.

For Master's Students

GROUP - I (Non- Sponsored) Tuition Fee Rs. 5000/- Inclusive of tuition Fee Waiver of Rs. 20,000/-	GROUP - II (Sponsored) Tuition Fee Rs. 25,000/-
1. Teaching Assistantship (TA)	1. Sponsored Categories (SW)
2. Research Assistantship (RA)	2. Project Staff (PS)
3. Govt./Semi.Govt. Fellowship Awardees (QIP/CSIR/UGC/DAE/DST/DBT/ NBHM/ICSSR/ME/RC/MNES/ICAR/ARCI/CPHEEO/ICMR/HBNI/ICPR/AERB/ AICTE/ ENDOWMENT	3. DRDO Sponsored
4. Teaching Assistantship through Project (TAP)	4. Sponsored Fellowship Awardees (SFA)- (Eg. CG, Infosys, TCS, Forbes Marshall. etc.)
5. Research Assistantship through Project (TAP)	5. Foreign Nationals with Indian Council for Cultural Relation Award (ICCR)
6. Foreign National with Teaching Assistantship (FRN-TA)	6. Self Financed foreign Nationals (FRN-SF)
7. Foreign National with Fellowship Awardee (FRN-FA)	-

8. MUDE Written Test and Interview

1. MUDE applicants will need to appear for a Written Test. 30% weighting will be for Internal Assessment consisting of Test and Interview for those seeking admission to the MUDE Programme at Indian Institute of Technology Bombay.

It will be conducted on the

The test paper is set in English and candidates must answer the questions only in English.

Examination Centre: The Indian Institute of Technology Bombay - 400076

2. General Instructions

Please read the instructions given in the brochure carefully before filling up the application form.

a) Online Application Form & Information Brochure (including the admission schedule along with the important dates) is available on the Institute website at the following link,

www.iitb.ac.in/newacadhome/mude.jsp

You are required to submit the application ONLINE. No Downloadable Forms will be available. After filling the form, you are advised to take a print of application and keep the same for the record.

The application fee is as follows,

Women candidates : Rs. 150/-

SC/ST/PwD category candidates : Rs. 150/-

All other candidates: Rs. 300/-

The fee is to be paid by SBI Internet Banking/Online Payment System and you do not have to submit the printed copy of the application. **Applications without online payment details will not be considered.**

APPLICATION FEE IS NON REFUNDABLE.

3. The Admit Card must be presented for verification at the time of examination.
4. Please note that you can submit only ONE application.
5. Non-programmable calculators are permitted. Exchange of calculator is strictly prohibited. Candidates have to bring their own calculators, if they want to use them.
6. Adoption of any kind of unfair means at the examination will render the applicant liable to disqualification.
7. You MUST provide the following while submitting the Application.
 - Scanned version of photograph
 - Scanned version of signature
 - Marksheet of the semester/Consolidated marksheet of the qualifying degree.
(Exam pending/result awaited candidates have to upload their latest/previous semester marksheet).
 - Caste Certificate (OBC-NC/ SC/ST), if applicable. An affidavit for having applied, in case the certificate is not yet received.
 - Person with Disability Certificate (PWD), if applicable.

8. OBC candidates may note that the limit of annual income is Rs. 8 lakhs for determining the creamy layer among Other Backward Classes (OBCs) candidates.

The OBC-NC certificate issued for the financial year 2020-21 by the Competent Authority in the prescribed format must be uploaded in the ONLINE application form and submitted at the time of admission.

The OBC reservation update Information is available in the public domain <http://www.iitb.ac.in/newacadhome/mude.jsp> under OBC Reservation Update.

9. Economically Weaker Sections (EWS) candidates may note that the limit of annual income is Rs.8 lakhs for determining the eligibility for benefit under Economically Weaker Sections (EWS) reservation.

EWS certificate, if applicable an affidavit for having applied in case the certificate is not yet received.

The EWS certificate issued by the Competent Authority in the prescribed format must be uploaded in the ONLINE application form and submitted at the time of admission.

The EWS reservation update Information is available in the public domain <http://www.iitb.ac.in/newacadhome/mude.jsp> under EWS Reservation Update.

10. PwD candidates will be given extra time, as per GOI rules on request by the candidate. Such requests need to be addressed to Head of the concerned academic units through email/hard copy well in advance.

- 11 . You should check the Institute website <http://www.iitb.ac.in/newacadhome/toadmission.jsp> for results / important announcements.

12. You should check emails sent to the email address provided in your application for all important Communications and announcements.

13. Candidates called for written test/interview should bring with them (i) Photo ID Card, (ii) Copy of the application form, (iii) copy of certificates and mark sheets, (iv) Admit card. (vi) Non-programmable calculators

14. Candidates having degree from foreign universities are required to submit equivalence certificate from Association of Indian Universities (AIU), New Delhi for qualifying Exam and proof of having First class or 60% (55% for SC/ST) marks or equivalent in qualifying examination.

Appendix I

a) Sponsorship Certificate – for full-time- (2 years)/part-time – (3years) candidates (On the letterhead of the Sponsoring Organization).

SPONSORSHIP CERTIFICATE (With Financial Support)

To,
The Director,
Indian Institute of Technology Bombay
Powai, Bombay- 400076

Sub: Sponsoring of an employee for the **Master’s in Urban Design and Engineering
(MUDE) programme** (With Financial Support) at IIT Bombay

Dear Sir,

We hereby sponsor the candidature of Shri / Smt. / Kum_____ employed in our organization as _____ for joining MUDE in the Centre for Urban Science and Engineering (**CUSE**) at your institute as a (**full time/part-time**) candidate.

He/She is employee of our organization since _____. We shall full relieve him/her from duties during the entire period of the MUDE programme, to enable him / her to devote full time to his / her studies in the Institute. We understand that the duration for full-time/part-time MUDE Programme is _____years. We shall bear the total expenses of his / her studies.

Date : _____ Signature and Seal of the Sponsoring Authority

Appendix II

- a) Sponsorship Certificate – for full-time- (2 years)/part-time – (3years) candidates
(On the letterhead of the Sponsoring Organization).**

SPONSORSHIP CERTIFICATE (Without Financial Support)

To,
The Director,
Indian Institute of Technology Bombay
Powai, Bombay- 400076

Sub: Sponsoring of an employee for the **Master's in Urban Design and Engineering
(MUDE) programme** (Without Financial Support) at IIT Bombay

Dear Sir,

We hereby sponsor the candidature of Shri / Smt. / Kum _____ employed in our organization as _____ (designation) for joining MUDE in the Centre for Urban Science and Engineering (**CUSE**) at your institute as a (**full-time / part-time**) candidate.

He/She is employee of our organization since _____. We shall fully relieve him / her from duties during the entire period of the MUDE programme, to enable him / her to devote full time to his / her studies in the Institute. We understand that the duration for full-time/part-time MUDE Programme is _____ years and he/she will bear the total expenses.

Date : _____ Signature and Seal of the Sponsoring Authority

Appendix – III

c) CERTIFICATE FOR PROJECT STAFF

This is to certify that Shri / Smt / Kum. _____
has been working in Project _____ from dt. _____.

The duration of the project is _____ years. Appointment of
Shri/Smt/ Kum _____ is for the period of _____ years.
His / Her appointment is likely to be extended for the further period.

I have no objection if he / she register for MUDE Programme in _____ Dep
artment under _____ category.

Signature _____

Prof. _____

Project Investigator: _____

Project Code : _____

Project Title : _____

Undertaking

I, Shri / Smt / Kum _____
hereby declare that in the event of my appointment in the project, I shall continue
my studies as Self-financed student for the remaining period.

Signature:

Date:

Name of Student:

Important Dates

Advertisement (in all leading Newspapers and on website)	March 15 2020
Issue of Application Forms begins	March 25, 2020
Last date for receiving completed Application forms	April 30, 2020
Date of displaying the list of candidates called for written test and/or interview	May 15, 2020
Written Test and Interview	June 18 & June 19, 2020
Declaration of Result 1 st offer list 2 nd offer list (if any)	June 29, 2020 July 9, 2020
Payment of Fees For 1 st offer list candidates for 2 nd offer list candidates (if any)	June 29 to July 7, 2020 July 9 to July 14, 2020
Registration and Orientation Programme (tentative)	July 21 to July 23, 2020
Instruction begins (tentative)	July 27, 2020