

**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
**CENTRE FOR URBAN SCIENCE AND ENGINEERING**



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

**INFORMATION BROCHURE**

**2019-20**

## **Contents**

- 1. The Institute**
- 2. Student Amenities**
- 3. MUDE Programme**
- 4. Eligibility**
- 5. Total Number of Seats**
- 6. Programme Duration, Credits and Course Structure**
- 7. Fees and Deposits**
- 8. MUDE Entrance Test**
- 9. General Instructions**

**Appendix I - Sponsorship Certificate with Financial Support  
(For Full/ time – 2 years/Part-time- 3 years)**

**Appendix II - Sponsorship Certificate without Financial  
Support (For Full/ time – 2 years/Part-time- 3 years)**

**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

**5. Total Number of Seats:** 20 intake (10 TAs + 10 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
- 1 UDE Lab
- 3 Electives
- Seminar
- Communications skills

## Semester II

- 1 Core course
- 1 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 Elective Courses (offered by CUSE)

S. 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		
<b>A) One time payment at the time of Admission</b>				
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
<b>Total (A)</b>	<b>7600</b>	<b>7600</b>	<b>7600</b>	<b>6700</b>
<b>B) Per Semester Fee</b>				
1. Tuition Fee- <b>Statutory fees</b>	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
<b>Total (B)</b>	<b>20100</b>	<b>40100</b>	<b>15100</b>	<b>2250</b>
<b>C) Deposits (Refundable) to be paid at the time of Admission</b>				
1. Institute Security Deposit	1000	1000	1000	0
2. Library Security Deposit	1000	1000	1000	0
*3. Mess Security Deposit	1000	1000	1000	0
<b>Total (C)</b>	<b>3000</b>	<b>3000</b>	<b>3000</b>	<b>0</b>
<b>Total Fees (A+B+C)</b>	<b>30,700</b>	<b>50,700</b>	<b>25,700</b>	<b>8,950</b>

\* 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

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

## **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 25<sup>th</sup> and 26<sup>th</sup> June 2019.

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) Application form along with Information brochure can be obtained from the Institute website [www.iitb.ac.in/newacadhome/mude.jsp](http://www.iitb.ac.in/newacadhome/mude.jsp). The application fee must be submitted along with the completed application form by way of Demand Draft in favour of “Registrar, IIT Bombay” , payable at Mumbai, preferably SBI/Canara Bank. The completed application form should be sent by post to Jt./Asst Registrar (Academic), Academic Office, Main Building, II Floor, IIT Bombay, Mumbai – 400 076.

b) The application fee is as follows,

Women candidates : Rs. 150/-  
SC/ST/PwD category candidates : Rs. 150/-  
All other candidates: Rs. 300/-

**Applications without Demand Draft will not be considered.**

**APPLICATION FEE IS NON REFUNDABLE.**

3. The Admit Card must be presented for verification at the time of examination.
4. Non-programmable calculators are permitted. Exchange of calculator is strictly prohibited. Candidates have to bring their own calculators, if they want to use them.
5. Adoption of any kind of unfair means at the examination will render the applicant liable to disqualification.
6. You MUST provide the following while submitting the M.Phil. Application.
  - Mark sheet of the last semester/ consolidated mark sheet of the qualifying degree. Result awaited candidates have to upload their latest/previous semester mark sheet.
  - 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.

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

7. 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 2018-19 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.

8. 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.

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.

9. You should check the Institute website for results / important announcements.

10. You should check emails sent to the email address provided in your application for all important Communications and announcements.
11. 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.
12. 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 M.Tech.Programme  
in \_\_\_\_\_ Department under \_\_\_\_\_ category.

Signature \_\_\_\_\_  
Prof. \_\_\_\_\_  
Project nvestigator: \_\_\_\_\_  
Project Code: \_\_\_\_\_  
Project Title: \_\_\_\_\_

---

#### Undertaking

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

Date: \_\_\_\_\_ Signature: \_\_\_\_\_  
Name of Student: \_\_\_\_\_

---

### **Important Dates**

Issue of Application Forms	3 <sup>rd</sup> April, 2019
Last date for receiving completed Application forms	30 <sup>th</sup> April, 2019
Written Test and Interview	25 <sup>th</sup> & 26 <sup>th</sup> June, 2019