

# ADMISSION BROCHURE 2021-22

M.TECH.  
DAM SAFETY AND  
REHABILITATION



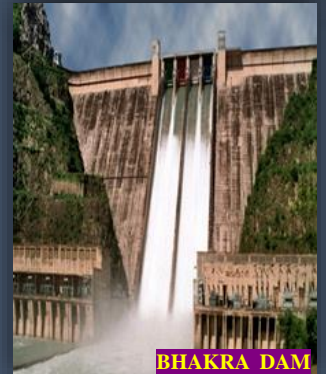
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

ROORKEE- 247 667 (INDIA)

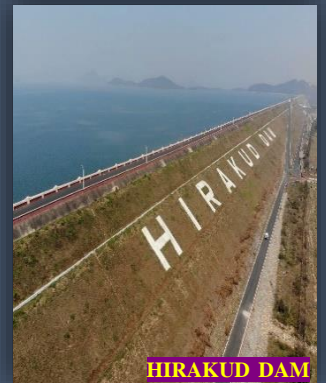
INDIA'S ICONIC DAMS



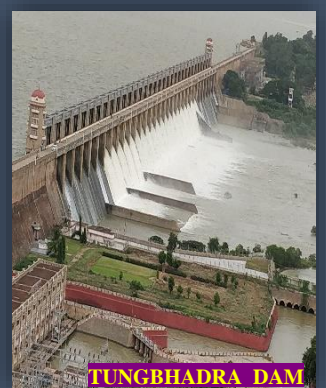
TEHRI DAM



BHAKRA DAM



HIRAKUD DAM



TUNGBHADRA DAM



SARDAR SAROVAR DAM

## Background of the Course


India has 5334 large dams in operation, and about 411 large dams are under construction. There are more than 90,000 small and medium dams in the country in addition to the large dams. These dams have been built to ensure water safety, essential for its food and energy security. In addition to this, there are numerous dams all over the world. IIT Roorkee plays a significant role in designing and executing these dams since its inception in 1847.

The safety of these dams is of utmost importance. Many of the existing dams are very old and need rehabilitation. Keeping these concerns in view, the Ministry of Water Resources, River Development & Ganga Rejuvenation through the Central Water Commission initiated the DRIP project in April 2012 with World Bank's assistance. IIT Roorkee is the academic partner in this Programme. To cover more dams in the project, phase II and phase III of the DRIP programme have been approved by the Ministry of Jal Shakti, Government of India, on October 29, 2020.

Keeping in view the importance of dam safety and rehabilitation, IIT Roorkee is starting a new M Tech. Programme in dam safety and rehabilitation with effect from Autumn Semester of 2021. The Programme will be jointly run by the Departments of Hydrology, Civil Engineering, Earthquake Engineering, Water Resources Development and Management and faculty members drawn from other Departments of the Institute like Architecture and Planning, Earth Sciences and Mechanical and Industrial engineering at the Department of Hydrology, IIT Roorkee.

## About the Institute

Indian Institute of Technology Roorkee has its roots in the Roorkee College, established in 1847 as the first engineering college in India, rechristened as Thomason College of Civil Engineering in 1854 after its mentor James Thomason. After about 100 years of distinguished services, the college was elevated to the University of Roorkee on November 25, 1949, as the first Engineering University of independent India. On September 21, 2001, the University was converted into an IIT by the Government of India. It has now 21 academic departments/centres offering various courses like 12 undergraduate courses in engineering and architecture, 3 dual degree programmes and about 48 postgraduate courses in engineering, architecture, sciences, computer applications and business administration besides research programmes at the doctoral level.



IIT Roorkee has a highly qualified and motivated faculty of about 465 members engaged in research and consultancy, and teaching. The faculty members offer their expertise through consultancy services to private/public sector and government agencies. Currently, the Institute has around 8700 students, with approximately 50% as undergraduate students, 20% as postgraduate students and 30% as research scholars.

Several academic and research centres of the Institute are engaged in interdisciplinary research, and many collaborative programmes exist with institutions in India and abroad. Central Library has more than 4,00,000 volumes of books and periodicals. Institute Computer Centre, Education Technology Cell with full-fledged television studio, Continuing Education Centre, and Institute Instrumentation Centre with highly sophisticated instruments also serve the Institute community's needs as central facilities.

IIT Roorkee is entirely residential, with well-designed hostels (Bhawans) both for boys and girls, and family accommodation for married students, sprawling sports ground, a swimming pool, a boat club, and a host of students' clubs with facilities for different games, including tennis, squash, and billiards etc. The Institute offers various extra-curricular activities like NCC, rowing, mountaineering, and trekking, which provide excellent opportunities for self-development. The campus also houses a CBSE affiliated senior secondary school.

## Eligibility for Admission

The Programme is open for the sponsored officers from India and abroad having 2-years relevant experience in Dam safety, rehabilitation and other associated areas and Gate qualified fresh engineering graduates having valid GATE score.

### Eligibility for Sponsored Candidates\*

1. Graduation/ Post Graduation degree in Civil/ Mechanical/ Earthquake/ Hydrology/ Water Resources Engineering/ equivalent,
2. Post-graduation degree in Physics/ Mathematics/ Geology/ Geophysics; Environmental Engineering/ equivalent,
3. Any other degree acceptable to the State Implementing agencies for regular appointment in the dam safety wings.

\*The candidates applying for admission must have at least 60% aggregate marks or 6.00 CGPA on a 10-point scale at qualifying Graduation/ Post Graduation degree. For Indian candidates belonging to SC/ST category, the qualifying percentage is 55% aggregate marks or 5.5 CGPA on a 10-point scale. SC/ST category candidates must submit the requisite certificate along with the application from a competent authority.

## Eligibility for GATE Qualified Candidates

1. B.E./ B. Tech degree in Civil Engineering/ equivalent with valid GATE score.

## How to Apply

### In-Service Engineers/ Officers

1. In service engineers/ officers should send their application through their Departments at the following address:  
**Prof. N.K. Goel,**  
Coordinator, M Tech. course on Dam Safety and Rehabilitation,  
IIT Roorkee, Roorkee –247667,  
[coordinator.icd@iitr.ac.in](mailto:coordinator.icd@iitr.ac.in); [goelhy@gmail.com](mailto:goelhy@gmail.com);  
Mobile: +91–9412393851; *(Preferably leave WhatsApp message/ SMS before calling)*  
Office: +91–1332–285814 *(Preferable number between 9 am to 8 pm on working days)*
2. The advanced applications may be sent to the [coordinator.icd@iitr.ac.in](mailto:coordinator.icd@iitr.ac.in) for checking the eligibility for admission.
3. A copy of the application should be sent to CPMU of CWC also at [dir-drip-cwc@nic.in](mailto:dir-drip-cwc@nic.in).
4. The candidates applying for admission must have at least 60% aggregate marks or 6.00 CGPA on a 10–point scale at the qualifying degree level. For Indian candidates belonging to SC/ST category, the qualifying percentage is 55% aggregate marks or 5.5 CGPA on a 10– point scale. SC/ST category candidates must submit the requisite certificate along with the application from a competent authority.
5. The officers should not bring their family in the beginning. The family should be brought only after getting the family accommodation by IIT Roorkee. Otherwise, the officers should make their own arrangements for family accommodation outside the IIT R campus.
6. GATE qualified fresh engineers should apply through the PG admission portal of IIT Roorkee. This form is primarily for the sponsored officers working in dam safety and rehabilitation and associated fields in India and abroad.

### Number of Seats: 30

22 for sponsored officers and 8 for GATE qualified fresh graduates.



## Faculty

The Programme will be jointly delivered by the IIT Roorkee faculty members drawn from the Departments of Hydrology, Civil Engineering, Earthquake Engineering, WRDM, Architecture and Planning, Earth Sciences and Mechanical and Industrial Engineering and the National and International experts.

## Fees & Estimated Annual Expenses

### International Candidates

International candidates sponsored by various agencies/organisations must pay the Institute fee at the following rates:

1. Candidates from SAARC countries — US\$ 2000 (per annum)
2. Candidates from other countries — US\$ 4000 (per annum)
3. Admission fee – US\$ 500 (one time at the time of admission)

The International officers should ensure their funding source at their end and send the application only through the sponsoring agency.

### Indian Sponsored / Gov Sponsored International Candidates

Approximate annual expenses under different heads are indicated in the table below. The total fee of **Rs 1,47 000** mentioned in **Part A** should be remitted through Bank Draft drawn in favour of the Registrar IIT Roorkee, payable at Roorkee and be enclosed along with the Deputation Order/ Financial Sanction. It may be noted that the other expenses mentioned in Part B of the Table will be borne by the students/ sponsored officers. The sponsoring agency may sanction/reimburse hostel fee and other costs directly to the candidates.

Expenditure for M. Tech. Programme of 2 years in Indian Rupees	
Part A: To be paid to the Institute in advance	
Institute Fee	1,25,000
Institute caution deposit	1,000
Library deposit	2,000
Miscellaneous onetime payments	5,000
Mess admission fee (one time)	4,000
Others	10,000
<b>Total</b>	<b>1,47,000</b>
Part B: To be paid to the candidates directly	
Hostel Fees	As per actual
Other expenses like field trips, books, lecture notes	As per actuals

## Notes:

1. The Library deposit shall be transferred to the Alumni fund on the completion of the Programme.
2. The Institute fees can be paid in two instalments of **Rs 84,500** and **Rs 62500** also at the time of admission and the third-semester registration.
3. Other expenses like field Trip, Books, Lecture notes etc., shall be as per actuals.
4. The Institute fee may vary as per the Institute policy, and in case of change, the revised fee will be payable.
5. The sponsoring organisations shall also bear the expenses related to the sponsored officers' salary, travel expenses related to the course, dearness allowance for the days of absence from the headquarters of the sponsoring organisations as per Gol rules. Such costs will be directly payable to the candidates, and the officers shall be treated on duty during the Programme.

## List of Courses:

Course	Semester
1. Assessing and Managing Risks Associated with Dams	First
2. Basics of Disaster Management and its Implementation Concepts	First
3. Hydrologic Safety Evaluation of dams	First
4. Programme Elective Course –I	First
5. Programme Elective Course –II	First
6. Sediment Management in Reservoirs	Second
7. Dam Safety Surveillance, Instrumentation and Monitoring	Second
8. Seminar	Second
9. Programme Elective Course –III	Second
10. Programme Elective Course –IV	Second
11. Programme Elective Course –V	Second
12. Dissertation Stage-I (to be continued next semester)	Third
Dissertation Stage-II (contd. From the third semester)	Fourth

## List of Programme Electives:

1. Seepage through Dams
2. Assessment and Management of Environmental issues in Reservoirs
3. Earthquake Geotechnical Engineering
4. Study tour/ Case studies
5. Geo-Mechanics
6. Geospatial Technology for Monitoring of Dams
7. Hydraulic and structural design of dams, spillways, and energy Dissipators
8. Ground Improvement and Geo-synthetics
9. Contract and Financial Management
10. Sustainable Tourism around Dams
11. Earth Retaining Structures and Dams (Concrete, RCC, CFRD, Arch, Earth, Rockfill dams & Barrages)
12. Seismic Safety of Embankment Dams
13. Concepts of Planning & Design of Hydro-Mechanical Components in Dams
14. Engineering Seismology and Hazard Assessment for dams

## APPLICATION FORM

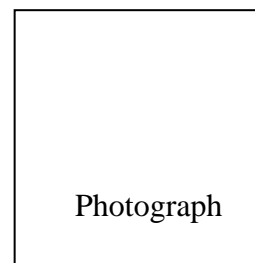
### M. TECH. PROGRAMME ON DAM SAFETY AND REHABILITATION INTERNATIONAL CENTRE FOR DAMS

**1<sup>st</sup> Course: August 2, 2021, to July 31, 2023**

*(IMPORTANT: Applicant may please ensure that he/she satisfies the necessary eligibility criteria)*

An advance copy of the completed application and academic transcripts (in English) be directly sent to **Prof. N.K. Goel, Coordinator, M. Tech. Programme on Dam Safety and Rehabilitation, International Centre for Dams, Department of Hydrology, Indian Institute of Technology Roorkee, Roorkee- 247667, India** (email IDs: [coordinator.icd@iitr.ac.in](mailto:coordinator.icd@iitr.ac.in); [goelhy@gmail.com](mailto:goelhy@gmail.com)) on or before **June 30, 2021**.

1. Full Name: .....  
in block letters (underline surname)
2. Father's Name .....
3. Mother' Name .....
4. Gender (Male/ Female) .....
5. Nationality: .....  
(any change in nationality may be indicated with the period)
6. Date and Place of birth: .....
7. Parentage (your country of origin): .....
8. Passport details (for foreign candidates only)  
Passport number: ..... Place of Issue: .....  
Date of Issue: ..... Date Validity: .....
9. Present address (correspondence address):  
House No. /Flat No and street:  
City/Town with Pin Code:  
State and Country:  
Mobile no with country code:  
Email:
10. Emergency address:  
House No. /Flat No and street:  
City/Town with Pin Code:  
State and Country:  
Mobile No with Country Code:  
Email:





11. Official Address:  
 House No. /Flat No and street:  
 City/Town with Pin Code:  
 State and Country:  
 Mobile No with Country Code:  
 Email:
12. Dates and place of the previous stay in India *(for International Applicants Only)*:  
 .....
13. Occupation: .....
14. Expected duration of stay: .....
15. Places to be visited: .....
16. Name of Indian Mission where visa will be applied *(for International Applicants only)*  
 Name of City and Country:  
 Phone No.:  
 Email:
17. Source of funding: .....
18. Whether accompanied by spouse/ dependent. If so. give particulars:  
 Name:  
 Passport number: Place of Issue:  
 Date of Issue: Date Validity:  
 (Family to be brought only after ensuring the permission and accommodation availability)
19. Qualifying Degree: .....
20. Mathematics at Graduation Level (Yes/No): .....
21. Qualifications (highest Degree first): *(Attach photocopies of mark sheets & certificates)*

College/Institute Name & address	Degree or Examination passed	Year of Passing	Division with % of marks secured	Minimum duration of the Degree	Main Subject(s)

- Note: 1. The percentage in the qualifying should necessarily be given.  
 2. Certificate of equivalence should be given if the name of the Degree is not the same as per essential Qualifications mentioned.  
 3. Duration of the qualifying degree after 10+2 education after preschool should be necessarily mentioned

22. Professional/ work experience (Starting from the recent one):

Name of Department/ Organisation	Position held	Period		Details of work done
		From	To	

23. Knowledge of the English language (read/write/speak): .....  
*(Certificate for the level of proficiency attained be submitted)*

24. Appeared in GRE or equivalent Examination (if yes, give details): .....

Place: .....

Date: .....

Signature of Applicant

**SPONSORED/ NO OBJECTION CERTIFICATE**

The undersigned is pleased to permit Mr./Ms. .... who is working in this organization for the last.....years (from ..... to .....) and is presently holding the rank/position of ..... for pursuing the M. Tech. in Dam Safety and Rehabilitation at IIT Roorkee.

His/her conduct and character has been good.

The Institution/Organization would relieve her/him immediately of joining the above Programme if selected for admission. If admitted, the candidate will be permitted to be present at the Institute as required by the M Tech's academic schedule. He/ she will continue to remain in service of this organization for the duration of the course.

IIT Roorkee's Necessary fees shall be payable by the sponsoring organisation to IIT Roorkee directly or through the officer. The necessary allowances shall be directly paid to the officer as per rules.

Signature of Head of the  
Institute/Organization with seal

Place: .....

Date: .....

Name: .....

Designation: .....