

M.Tech. Admissions Brochure

July 2022 Session

M.Tech. in Networks and Information Security

Department of Computer Science and Engineering

Indian Institute of Technology Hyderabad



భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

M.Tech. Admission Details

1. General Information

The CSE department at IIT Hyderabad invites outstanding candidates to join us for the Master of Technology (M.Tech.) programme in **Networks and Information Security**. The M.Tech. programmes at CSE, IITH provide ample opportunities for students to explore both research and development skills. The advanced and specialized courses provide deeper insights into various subjects in Computer Science and Engineering, while the M.Tech. thesis allows you to go deeper into a topic of your interest by joining exciting research projects of the faculty in the department. An M.Tech. at CSE-IITH will prepare you both for sought-after industry jobs, or for a Ph.D. in related areas of Computer Science and Engineering. IITH has its vision firmly entrenched in being a cradle for invention and innovation, and has already established partnerships with international partners, especially in Japan, since its inception in 2008.

2. Call for Applications

Applications are invited for admission to the **Networks and Information Security (NIS) M.Tech. programme** in the following categories for the **July 2022 session**. Detailed eligibility criteria for each are given in Section 4. Please note that the intake for 2-year M.Tech. programmes at CSE, IITH happens once a year (in the July session).

1. 2-Year M.Tech. in Networks and Information Security, under the following admission modes:

- a. Ministry of Education (MoE)-sponsored (GATE qualified; **or** BTech/MSc/MCA from IITs or IISc)
- b. Self-Sponsored

2. 3-Year M.Tech. in Networks and Information Security, under the following admission modes:

- a. Project Sponsored (GATE qualification necessary)
- b. Project Sponsored, with 6 months experience in IITH (GATE qualification not necessary)

Regarding modes of funding/sponsorship:

The following points explain the various modes of funding for the categories mentioned above:

- Students admitted under the MoE-sponsored mode into any of the above programmes will receive a stipend from MoE (Ministry of Education, Govt. of India) as per programme guidelines.
- Students admitted into the 3-year M.Tech. programme under Project Sponsored mode receive a stipend from the funds of the project (which may be Govt. or Industry sponsored) that they conduct research on during the programme.
- Students admitted in the Self-sponsored mode do not receive a stipend.

For the fee structure for each of the above admission modes, please refer to <https://iith.ac.in/academics/fee-structure/>

For the latest updates regarding admissions including eligibility criteria, selection procedure and other clarifications, candidates are requested to check the CSE MTech admissions webpage: <https://cse.iith.ac.in/admissions/mtech.html>

For details on the selection process for each programme and modes of admission, please see Section 5 below.

3. About the Networks and Information Security Programme:

In 2020, IIT Hyderabad launched a new M.Tech. programme in Networks and Information Security (NIS), as a specialization under the department of Computer Science and Engineering. The programme offers a rich curriculum in both the theoretical and practical aspects of networks and information security.

The curriculum for M.Tech in NIS is designed with the objective of laying a strong foundation through core courses, followed by advanced electives in various aspects of information security.

NIS Course Curriculum

Core courses:

- Advanced Data structures and Algorithms
- Cryptology
- Advanced Computer Networks (Software Defined Networks)
- Network Security

Electives :

- Wireless networks and security (Wi-Fi, 4G/5G)
- Foundations of Machine Learning
- Natural Language processing (NLP)
- Internet of Things (IoT)

- Distributed Computing
- Quantum Cryptography
- Circuit Complexity

Why NIS@CSE, IITH?

1. **Holistic Curriculum:** The curriculum is designed to provide thorough training in both theoretical foundations and practical aspects of networks and information security. The program also includes training in other core areas of computer science, including subjects like Data Science and Machine Learning which are proving to be useful in security.
2. **Hands-on training in cyber security:** Extensive lab sessions with experiments like secure file transfer, downgrade attacks, MITM attacks using open SSL, firewalls: design, implementation, analysis and applications.
3. **Distinguished faculty** specializing in computer networks and security, with research papers published in prestigious scientific journals and conferences like IEEE Communications, Network Operations and Management Symposium, FCRC, DEBS - ACM, HiPC, SC.

Relevant areas of research at the department

1. Software defined networks,
2. Blockchain technologies,
3. ML applications in networks
4. Secure Quantum Communications
5. Cryptology
6. Network Security
7. Video content analysis
8. Code obfuscation (compilers security)

4. Eligibility Criteria:

2-Year M.Tech. in Networks and Information Security

1. *MoE sponsored (GATE qualified):*
 - a. A 4-year B.Tech./B.E. degree in any engineering discipline or an MSc/MS/MCA degree in ECE/Statistics/CS/IT/Maths, with an excellent academic record. Candidates having professional qualifications recognized by AICTE, like AMIE, are also eligible to apply, **AND**
 - b. The candidate should have a valid GATE score in CS/ECE/Statistics/Maths.

- c. As an exception to point (b) above, B.Tech/MSc/MS/MCA students from IITs and IISc with a CGPA/CPI of at least 8.0 will be granted a waiver from GATE requirement.

2. *Self-Sponsored*

- a. A B.Tech./B.E. degree in ECE/Statistics/CS/IT/Maths or an MSc/MS/MCA degree in ECE/Statistics/CS/IT/Maths with an excellent academic record. Candidates having professional qualifications recognized by AICTE, like AMIE, are also eligible to apply. **Alternatively**, candidates with a valid GATE score in CS/ECE/Statistics/Maths, and a 4-year B.Tech/B.E. degree in any engineering discipline are eligible to apply.
- b. In case of Industry-Sponsorship, a sponsorship letter from the employer needs to be produced at the time of the selection interview (for details on the selection process, see Section 5 below).

3-Year M.Tech. in Networks and Information Security:

1. *Project Sponsored (GATE qualification necessary):*

- a. A 4-year B.Tech./B.E. degree in any engineering discipline or an MSc/MS/MCA degree in CS/IT/Maths, and with an excellent academic record. Candidates having professional qualifications recognized by AICTE, like AMIE, are also eligible to apply, **AND**
- b. The candidate should have demonstrated adequate background in computer science or related areas (Valid GATE score in CS/ECE/Statistics/Maths).

2. *Project Sponsored, with 6 months IITH experience (GATE qualification not necessary):*

- a. A 4-year B.Tech./B.E. degree in any engineering discipline or an MSc/MS/MCA degree in ECE/Statistics/CS/IT/Maths, and have an excellent academic record. Candidates having professional qualifications recognized by AICTE, like AMIE, are also eligible to apply, **AND**
- b. The candidate must be currently involved in a project with a faculty at CSE Department, IITH, and the current supervisor's project funds the expenses of the M.Tech. Programme, **AND**
- c. A sponsorship letter from the project supervisor needs to be produced at the time of the selection interview (see details of selection process in Section 5 below).

5. Selection procedure and Important Points:

2-year M.Tech. Programme, MoE-Sponsored mode:

1. Admission to the 2-year M.Tech. programme under MoE-sponsored mode is guided primarily by GATE score cut-offs, and follow-up interviews if required. Admission offers will be made via COAP (Common Offer Acceptance Portal). The department may conduct further rounds of written tests and interviews after COAP to fill any

unfilled seats. Please check our website (<https://www.cse.iith.ac.in/admissions/mtech.html>) for details and updates on the admissions process.

2. Candidates admitted under this mode will be required to carry out a Teaching Assistantship (TA) through the duration of the programme. A stipend will be paid according to MoE (Govt. of India) guidelines.
3. As stated in Section 4, an exception to the stated eligibility criteria is: B.Tech/MSc/MS/MCA students from IITs and IISc with a CPI (CGPA) of at least 8.0 will be granted a waiver from GATE requirement. However they will have to appear for a written test and/or interview, where they will be tested on programming skills and knowledge of basic CS subjects.

2-year M.Tech. Programme, Self Sponsored mode:

1. Admissions will be based on an entrance exam and/or interviews for shortlisted candidates. Valid GATE scores are highly recommended, but not mandatory for this mode of admission. The written test/ interviews for these categories will test the candidates on standard topics in an undergraduate Computer Science syllabus.
2. Prior research exposure and/or industry experience are also considered while selecting candidates in these modes.
3. Further details regarding the Self-Sponsored M.Tech. programme including selection procedure and fee structure will be updated on our admissions page.

3-year M.Tech. Programme, all modes:

1. Admission to the 3-year M.Tech. Programme will be based on an entrance exam followed by interviews for shortlisted candidates. The department may use other application parameters including GATE score for shortlisting candidates. Interviews test the candidates on standard topics in a Computer Science syllabus (data structures, programming, theory of computation, algorithms, networking, OS, DBMS, etc).
2. Students in a 3-year M.Tech. programme complete the same amount of coursework as 2-year M.Tech. students but are additionally involved in sponsored research projects and get sufficient time in each semester to work on research.
3. Admitted students will receive a stipend as per research project guidelines for Research Assistantship (RA), depending on mode of admission.
4. Prior research exposure and/or industry experience are also considered while selecting candidates in these categories.

Points common to all admission modes:

1. The department also has the provision for students in the M.Tech. programme to convert to Ph.D. during the programme.
2. Candidates still to appear in their qualifying degree examinations may also apply, provided they appear in all their qualifying degree examinations and complete all requirements for their degrees at least a month before the joining semester. If selected, such candidates shall be admitted provisionally, and they will have to furnish the results of their qualifying degree examinations on joining. Further, they must fulfill the minimum requirements of marks/CPI, and other conditions like valid GATE score, etc., as mentioned under eligibility criteria for respective programmes. Failure to fulfill any of these requirements shall automatically result in cancellation of admission.
3. The department reserves the right to set any cut off criteria for shortlisting the candidates. The shortlisted candidates will be called for an exam/interview as required. The department reserves the right to conduct interviews for admission to the 2-year M.Tech. programme even if the applicant has a valid GATE score. The department has the right not to select any candidates if appropriate candidates are not found.

6. Documents:

The following certificates are to be produced by the candidates in original at the time of interview for verification:

1. Degree / Diploma Certificates or provisional certificates from the competent authority of the University or Institute concerned. (In case of candidates whose results are awaited, producing the mark sheets / grade card will be sufficient. However, if selected, they have to produce the certificate mentioned, for verification, at the time of admission)
2. All Mark sheets / Grade Cards of your qualifying examinations
3. OBC/SC/ST Certificate, if applicable
4. Sponsorship Letter, if applicable
5. List of Publications, if applicable
6. No objection certificate from the present employer, if applicable
7. Documentary evidence establishing current employment, if applicable

For updates and latest information, interested candidates are requested to periodically check: <https://www.cse.iith.ac.in/admissions/mtech.html>