# M.Tech Admissions Brochure

2-Year and 3-Year programs
Session: July, 2020

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

**Department of Electrical Engineering**
**IIT Hyderabad**
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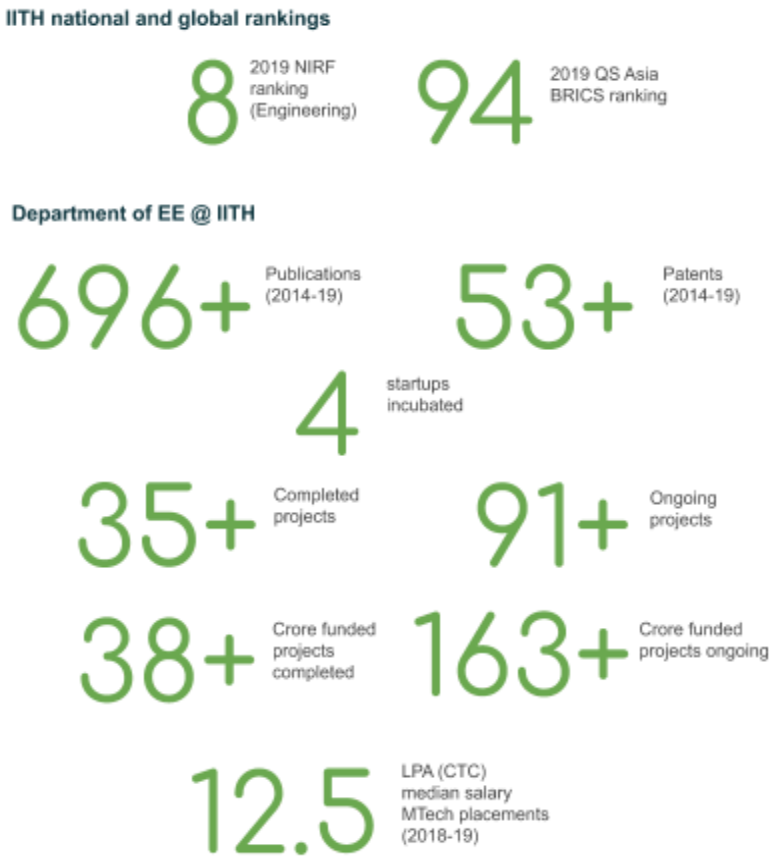
# 1. Department overview:

The Department of Electrical Engineering is the largest department at IIT Hyderabad that has 192 B.Tech students, 122 M.Tech students and 162 PhD scholars. We have a team of 32 dedicated and dynamic faculty members (28 fulltime + 4 visiting). Please visit https://ee.iith.ac.in/faculty.html to know more about their areas of interest.

# 2. Why choose M.Tech at EE-IITH?

The M.Tech program in Electrical Engineering started in 2009. The M.Tech students have a significant role to play in the growth of the departmental footprint in the research arena. They are provided with state-of-the-art laboratory facilities that they can access at any time.




EE-IITH alumni have achieved excellence all round, in industry and academia. Our alumni are pursuing higher studies in top universities (Stanford, Michigan, UCLA, UCSD, etc.) and working in major companies (Qualcomm, GE, Xilinx, Intel, TSMC, ISRO, etc.) across the world.

The faculty members of the Department of Electrical Engineering are well versed with the latest industrial practices and endeavour to bridge theoretical understanding and practical applications. We have strong industrial interactions. The continuous feedback received from industries has proven to be helpful to educate the students in a way so that they can develop skills to take up engineering challenges in the real world.

Students are always encouraged to share their ideas rather than only following the instructions.

## 3. Specializations and research activities

There are broadly 4 specializations[1] you can choose from to pursue an M.Tech in our department. The following lists the various research activities in each.

| | |
|---|---|
| **Communications and Signal Processing** | 5G, mmWave and LiFi communications, 3D immersive display, AI and ML, Internet-of-things (IoT) and cyber physical systems, Information theory and coding, Performance analysis, Resource allocation and Game theory, Speech and multimedia signal processing, Security and privacy, UAV based sensing |
| **Microelectronics and VLSI** | VLSI/ULSI IC and system design, Nanoelectronics, Nano bio sensors, gas sensors, Nanophotonics, metamaterials, optoelectronic devices, 3DIC, MEMS-ASIC integration, Flexible electronics, Embedded systems, Analog, digital and mixed signal VLSI, Energy harvesting, ICs for wireless communication, Integrated microelectronic devices |
| **Power Electronics and Power Systems** | Microgrids, Renewable energy systems, Multilevel inverters and drives, Power quality, Switched mode power conversion, Converter design for grid connected renewable energy, Power system stability, Power system protection, Smart grids, Wide area monitoring and control |
| **Systems and Control** | Pattern matching and data mining, Big data analytics, Condition monitoring, Advanced/statistical control, Systems biology |

## 4. M.Tech programs:

For the current session, the Department of Electrical Engineering at IIT Hyderabad offers the following M.Tech programs.

1. Full-time 2-year regular M.Tech program (MHRD sponsored/M.Tech TA) in all 4 specializations

[1] Admissions to the M.Tech program in Artificial Intelligence are now handled by the department of AI. Please see ai.iith.ac.in for more details.

2. Full-time 2-year industry/self-sponsored M.Tech program in all 4 specializations
3. Full-time 3-year program (IITH project sponsored/MTech RA) in only the following specializations
    a. Communications and Signal Processing
    b. Microelectronics and VLSI
4. Full-time 2-year government lab/public sector sponsored M.Tech program

**Calls for applications for 3-year M.Tech and 2-year industry/government lab sponsored programs will be announced later. Please see https://ee.iith.ac.in/mtech.html for the latest updates.**

All the above programs have the following three components in the curriculum.

1. Theory courses.
2. Laboratory courses.
3. M.Tech thesis/project work.

All the above programs have the same total credit requirement and the credit composition (i.e., distribution of total credit over individual components). Typically, students have to do 48 credits of coursework (theory+lab+24 credits thesis work), 1 credit mandatory English communication and 1 credit for industrial lectures. The only difference is that they are spread over different durations (2/3 years). Please see https://ee.iith.ac.in/mtech_courses.html to get an idea of the curriculum.

## Full-time 2-year regular M.Tech program

Students in the full-time regular 2-year M.Tech program will be paid a stipend (as per the MHRD norm) against their service as teaching assistants (TA) to different course instructors. The typical TA tasks include exam invigilation, supervising undergraduate lab experiments and so on.

## Full-time 3-year M.Tech program

Students admitted to the full-time M.Tech 3-year program are responsible to provide research assistance apart from the teaching assistance. The typical responsibility of a research assistant (RA) includes managing laboratory, preparing experimental setup for an ongoing research, and so on. The advantage of the full-time 3-year M.Tech program is that the students can get better exposure to research under the particular program. An RA might have a slightly higher stipend.

**Please note that the EE department is not accepting applications for 3-year M.Tech program with MHRD fellowship for August 2020. There is only 3-year M.Tech with fellowship from projects of IITH faculty, and that too only in Communications and Signal processing, and VLSI and microelectronics.**

## Full-time 2-year self/industry sponsored program

This is a new program, starting August 2020. In view of the high demand in industries and research organizations for the highly skilled professionals and experts in specific domains, IITH had started an All course MTech program (ACM). After the success of ACM program, the institute has further revamped it to Self-sponsored MTech program to bring it at par with regular MTech Program, to benefit the students.

There is no difference in curriculum and degree awarded to the regular and self/industry sponsored candidates. However, self/industry sponsored candidates are **not eligible for fellowship** even if they have a valid GATE score. The fees for both industry and self-sponsored M.Tech is also higher: INR 20,000/- per credit, and for the entire program the cost is around 10 lakh INR (considering 48-52 credits for a typical program). Hostel accommodation is not guaranteed for self-sponsored candidates, but they might get hostel accommodation if there is availability. Conversion from M.Tech self/industry sponsored to M.Tech TA/RA or vice versa is not allowed.

### Fee Structure for self-sponsored/industry sponsored M.Tech

- Refer https://www.iith.ac.in/academics/fee-structure/ for program fee structure.
- Fees will be around INR 20,000/- per credit, and the total cost of the 2-year program is around 10 lakh INR.
- Hostel accommodation not guaranteed. Hostel accommodation and Mess facility - not included in fee structure and chargeable as per norms, subject to the availability.

### Opportunities after M.Tech.

- All course M.Tech. (old version self-sponsored MTech) Placement:

| Year | Cate-gory | Total Students | Registered For place-ments | Placed Including PPO | Double Offer | Higher Studies | Non-Placed | Success % |
|---|---|---|---|---|---|---|---|---|
| 19-20 | ACM | 7 | 7 | 7 | 0 | 0 | 0 | 100% |
| 18-19 | ACM | 11 | 11 | 8 | 3 | 3 | 0 | 100% |

**International offers:** TSMC TAIWAN, Rakuten JAPAN, Denso JAPAN, Toyota(TRIAD) JAPAN

**National offers:** Intel, TCS IOT, Redphine, Xilinx, GE, TCS R&D, Atkins

# 5. Eligibility criteria and selection process:

At the time of application, the candidate must have an earned BE/B.Tech degree or, at least, should be in the final year of undergraduate studies. The candidate must have a BE/B.Tech degree at the time of admission.

- **2-year regular M.Tech program with MHRD fellowship (M.Tech TA)**
  - **Mode TA1 (with GATE score):** The only criteria for application is that the candidate must have a valid GATE score in the appropriate paper:

| M.Tech Specialization | GATE Paper Code |
|---|---|
| Communication and signal processing | EC |
| Microelectronics and VLSI | EE/EC/PH |
| Power Electronics and Power Systems | EE |
| Systems and Control | EE/EC/IN |

Applications are accepted only through the **Common Offer Acceptance Portal (COAP)**. Admission is typically based upon GATE score and rank. However, depending upon the circumstances, additional selection criteria may also be enforced.

  - **Mode TA2 (B.Tech degree from IITs):** Admission is through interview and written test. The candidate must have **a BTech degree from an IIT in one of the following specializations with a CGPA score above 8**.

| M.Tech Specialization | BE/B.Tech Discipline |
|---|---|
| Communication and signal processing | EE/ECE/MC or equivalent |
| Microelectronics and VLSI | BE/BTech in EE/EC/EP/ES/Nanotechnology or equivalent, MSc or equivalent in Electronics/Electronic sciences/Physics |
| Power Electronics and Power Systems | EE or equivalent |
| Systems and Control | EE/EI or equivalent |

Applications will be accepted only through the IITH admissions portal. Please see https://ee.iith.ac.in/mtech.html

Abbreviations:

- Electrical Engineering (EE).

- Electronics and Communication Engineering (ECE).
- Electronics and Instrumentation (EI).
- Mathematics and Computing (MC)
- Engineering Physics (EP)
- Engineering Sciences (ES)

## 2-year self-sponsored M.Tech program (M.Tech SS)

Admission is on the basis of a written test and interview. GATE is not mandatory for application. In order to be eligible to apply for a particular specialization, the candidate must firstly have BE/B.Tech background **with CGPA 7 and above**, in any of the disciplines recognized by the respective M.Tech specialization.

| M.Tech Specialization | BE/B.Tech Discipline | GATE Paper Code |
|---|---|---|
| Communication and signal processing | EE/ECE or equivalent | EC |
| Microelectronics and VLSI | BE/BTech in EE/EC/EP/ES/Nanotechnology or equivalent, MSc or equivalent in Electronics/Electronic sciences/Physics | EE/EC/PH |
| Power Electronics and Power Systems | EE or equivalent | EE |
| Systems and Control | EE/EI or equivalent | EE/EC/IN |

Applications will be accepted only through the IITH admissions portal. Please see https://iith.ac.in/mtechadmissions/**.**

Tentatively, the written test and interview will be in the month of **July 2020**.

## 3-year M.Tech programs (M.Tech RA)

- **Mode RA1:** Candidates must typically have a valid GATE score in the appropriate paper.

  Preliminary shortlisting is through GATE score and/or academic background. Candidates shortlisted will have to attend a written test and interview.

| M.Tech Specialization | GATE Paper Code |
|---|---|
| Communication and signal processing | EC |
| Microelectronics and VLSI | EE/EC/PH |
| Power Electronics and Power Systems | EE |
| Systems and Control | EE/EC/IN |

Applications will be accepted only through the IITH admissions portal. Please see https://iith.ac.in/mtechadmissions/

- **Mode RA2 (B.Tech degree from IITs):** Preliminary shortlisting is through academic background. Candidates shortlisted will have to attend a written test and interview.

| M.Tech Specialization | BE/B.Tech Discipline |
|---|---|
| Communication and signal processing | EE/ECE/MC or equivalent |
| Microelectronics and VLSI | BE/BTech in EE/EC/EP/ES/Nanotechnology or equivalent, MSc or equivalent in Electronics/Electronic sciences/Physics |
| Power Electronics and Power Systems | EE or equivalent |
| Systems and Control | EE/EI or equivalent |

Applications will be accepted only through the IITH admissions portal. Please see https://iith.ac.in/mtechadmissions/

## 2-year government lab/public sector/industry sponsored M.Tech programs

There will be a written test and interview. GATE is not mandatory.

| M.Tech Specialization | BE/B.Tech Discipline | GATE Paper Code |
|---|---|---|
| Communication and signal processing | EE/ECE or equivalent | EC |
| Microelectronics and VLSI | BE/BTech in EE/EC/EP/ES/Nanotechnology or equivalent, MSc or equivalent in Electronics/Electronic sciences/Physics | EE/EC/PH |
| Power Electronics and Power Systems | EE or equivalent | EE |
| Systems and Control | EE/EI or equivalent | EE/EC/IN |

Applications will be accepted only through the IITH admissions portal. Please see https://iith.ac.in/mtechadmissions/

### Written test and interview

| M.Tech Specialization | Syllabus |
|---|---|
| Communication & signal processing | EC Gate http://gate.iitd.ac.in/Syllabus/EC.pdf |
| Microelectronics and VLSI | EC Gate http://gate.iitd.ac.in/Syllabus/EC.pdf |
| Power Electronics & Power Systems | EE Gate http://gate.iitd.ac.in/Syllabus/EE.pdf |
| Systems and Control | EE Gate http://gate.iitd.ac.in/Syllabus/EE.pdf |

Written test and interviews for various programs (except 2-year regular M.Tech which does not have written test and interview) will tentatively be in the month of July 2020. Please check https://ee.iith.ac.in/mtech.html for the latest details.

The department reserves the right to set any cutoff for the shortlisting of M.Tech applications. In addition, the department has all the rights to withdraw seats and not select anybody if no appropriate candidates are found.

For deciding the cutoff marks for pre-screening and written test, (applicable to 3-year programs, and 2-year industry/self-sponsored program) and CGPA cutoff for modes TA2, RA2, the SC, ST and OBC candidates will be provided relaxation as per the standard GOI norm.

## 6. Application Process:

IIT Hyderabad has a centralized online application portal for the M.Tech admission. Candidates are requested to visit https://iith.ac.in/mtechadmissions/ for details.

**For the latest updates on the M.Tech admissions at EE, IITH, previous year cutoffs, fee structures and additional information, please visit** https://ee.iith.ac.in/mtech.html.

**In case of any queries, please write to** iith_ee_mtech_admission@iith.ac.in