

Admission to Ph.D. and M.S. (Research) January-2021 Semester

Indian Institute of Technology Tirupati is the first among the 3G IITs, announced in 2014, to have its foundation stone laid in March 2015. It started functioning with the support of its mentoring institute, IIT Madras from the academic year of 2015-16. Currently, the academic programmes in B.Tech are Chemical Engineering, Civil & Environmental Engineering, Computer Science & Engineering, Electrical Engineering and Mechanical Engineering. The curriculum has emphasis on theoretical knowledge and practice oriented laboratories. Courses are planned to nurture innovation, creativity, quality, teamwork, communication skills, ethics and societal interaction. Subsequently, M.Tech, M.Sc., M.S.(Research) and Ph.D. programmes were also started.

Applications are invited for admission to the M.S.(Research) and Ph.D. programmes starting in January-2021 Semester, as per details given below:

Doctor of Philosophy (Ph.D.)

Research Areas

1. Engineering

1.1 Chemical Engineering:

Process Control and Optimization, Machine Learning in Process Systems, Multiphase systems and Microfluidics, Advanced Separation Technology, Food Science and Technology, Colloids and Interfaces, Nanomaterials, Catalysis.

1.2 Civil & Environmental Engineering:

- 1) Pavement engineering - 1 project position
- 2) Air quality modeling and management / Environmental Life Cycle Analysis*
- 3) Water and waste water treatment engineering * - (project position only)
- 4) GIS and Remote Sensing – (open only for UGC NET qualified candidates with JRF)

*** UGC NET qualified candidates with JRF may also apply.**

1.3 Computer Science & Engineering:

Parallel Computing, Algorithms and Data Structures, Reinforcement Learning, Data Science Algorithms and Applications, Computer Networks, Computational Complexity, Computer Architecture and VLSI Design, Software Engineering.

1.4 Electrical Engineering:

RF-Microwave Engineering; Wireless Communications and networks; Semiconductor devices & Nano-electronics; Power Electronics and Drives; Control and Robotics; Electronic instrumentation; Power Engineering and Smart Grid Technology

1.5 Mechanical Engineering:

Fluid Mechanics, Heat Transfer, Turbomachines, Refrigeration and Air-Conditioning, Renewable Energy, Sprays and Combustion, Energy Storage and CFD, Solid Mechanics, Computational Mechanics, Composites, Plasticity, Phase Transformations, Manufacturing, Metrology, Advanced Manufacturing and Micro Machining, Mechanics of composite materials and structures, Fatigue damage analysis of composite materials and structures, Advanced Manufacturing and tribology

2. Sciences

2.1 Chemistry:

Organic Chemistry: New methods of development for sustainable organic synthesis by transition metal catalysis; electro- and photoredox catalysis; C-X (X = H, C, O, N) bond activation.

Bioinorganic Chemistry: Development of functional models (enzyme mimics); Coordination & Supramolecular Chemistry; Chemical Biology; Protein – Inorganic Hybrid materials and Environmental Chemistry (detoxification of toxic ions and compounds).

Theoretical and Computational Chemistry: Stochastic thermodynamics; Polymer Translocation; Stochasticity in Biochemical processes; Chemical Dynamics and Spectroscopic Modelling; Statistical Mechanics. Modelling functional molecules and low-dimensional materials for optoelectronic, photovoltaics, photocatalysts, thermoelectric, spintronics, etc.

Note: Ph.D. aspirants having qualified for CSIR/UGC-JRF, Inspire and any other external fellowships are encouraged to apply.

2.2 Physics:

Experimental Condensed Matter Physics (*Magnetism, Superconductivity, Strongly correlated electron systems*).

Experimental Atomic, Molecular and Optical Physics (*Laser cooling, Ion trapping, Cavity QED, Nitrogen Vacancy centers, Auto resonance cooling, Quantum Communication, Quantum Technologies, Cavity Ring Down Spectroscopy (CRDS)*).

Theoretical and Experimental Plasma Physics (*Plasma modelling and diagnostics*)

Categories of Admission (Ph.D.):

- (a) Regular full-time scholars.
- (b) Research scholars under the external registration programme, sponsored by and employed in industry/organisation/national laboratories having R&D facilities and recognition by DST or by IIT Tirupati. A Research Scholar under the external registration programme will normally carry out part or all of his/her research work in the industry/organization/national laboratory employing the scholar under the supervision of a guide employed in the same organization and a guide at IIT Tirupati. The candidate must have at least two years' experience in the parent organization.

Eligibility: Ph.D. in Engineering

- (a) Candidates with a Master's degree in Engineering/Technology or a Master's degree by Research in Engineering/Technology with a good academic record.
- (b) Candidates with Master's degree in Sciences with a good academic record and of exceptional merit are eligible for the relevant Engineering discipline. They should have a valid GATE score or UGC/CSIR-NET/NBHM or equivalent qualification in the relevant area tenable for the year of registration.
- (c) Candidates who have qualified for the award of Bachelor's degree in Engineering/Technology from a Centrally Funded Technical Institute (CFTI) with an exceptionally good academic record in an eligible discipline will be considered for direct admission to Ph.D. provided he/she has a minimum CGPA of 8/10.

Eligibility: Ph.D. in Sciences

- (a) Master's degree in Sciences with a good academic record and having a valid GATE score or UGC/CSIR-NET/NBHM/INSPIRE/JEST or equivalent qualification tenable for the current year in the relevant area. Master's degree holders in Engineering/Technology are also eligible.
- (b) ME/M.Tech or MS by Research in Engineering or 2 year M.Sc from IITs (entry through JAM) with CGPA 8.0 and above. BS+MS (5 years integrated) from CFTI is also accepted.
- (c) Candidates who have qualified for the award of Bachelor's degree in Engineering/Technology from a Centrally Funded Technical Institute (CFTI) with an exceptionally good academic record in an eligible discipline will be considered for direct admission to Ph.D. in Sciences provided he/she has a minimum CGPA of 8/10 and they can be offered HTRA, if selected.

Master of Science (Research) [M.S. Research]

Research Areas

1. Engineering

1.1 Chemical Engineering:

-Same as Ph.D.-

1.2 Civil & Environmental Engineering:

-Same as Ph.D.-

1.3 Computer Science & Engineering:

-Same as Ph.D.-

1.4 Electrical Engineering:

-Same as Ph.D.-

1.5 Mechanical Engineering:

-Same as Ph.D.-

Category of Admission (M.S. by Research):

- (a) Regular Full-Time Scholars
- (b) Research scholars under the external registration programme sponsored by and employed in the parent industry/organisation having R&D facilities and recognized by DST or IIT Tirupati. A Research scholar under the external registration programme will normally carry out part or all of his/her research work in the industry/organisation/national laboratory employing the scholar under the supervision of a guide employed in the same organisation and a guide at IIT Tirupati. The candidate must have at least two years' experience in the parent organisation.

Eligibility (M.S. by Research)

- (a) Candidates with a Bachelor's degree in Engineering/Technology/MCA/M.Sc. in the relevant departments with valid GATE score.
- (b) Candidates having Associate Membership of the following professional bodies are also eligible for admission to the M.S. programme of their parent discipline provided they have a valid GATE score and have passed both part A and part B of the Membership examinations with a good academic record: The Institution of Engineers (India) (Civil/Mechanical/Electrical and Electronics/Electronics and communications), The Institute of Electronics and Tele-Communication Engineering.
- (c) Engineering graduates from IITs and other Centrally Funded Technical Institutes (CFTI) with a CGPA of at least 8/10 are eligible for seeking admission, without GATE score, to the MS Programme and they can be offered HTRA, if selected.
- (d) Candidates under External Registration should have the same qualification as in (a) however, valid GATE score is not required.

General Instructions

- **Applicants should apply through the online portal only.**
- Candidates who expect to complete all the requirements of their degree before 31-Dec-2020 can also apply.
- Shortlisted candidates will have to appear for an interview and/or a written test.
- Reservations for SC/ST/EWS/OBC-NCL/PwD shall apply as per GOI rules.
- Financial Assistance is available (HTRA) as per the norms of MoE or other funding agency.
- The last date for submission of applications is **06.12.2020 (Sunday)**.
- The admissions shall be governed by regulations given at IIT Tirupati website.
- For any queries, please contact Academic Section. However, it may please be noted that Specific Queries will not be entertained.