

Semester-wise credit requirements

Course curriculum

Semester	Theory		Lab	Total (Credits)
	Core	Elective		
1	6	6	Lab-1 Material Synthesis and Characterization	12+2
2	6	6	Lab-2 Energy conversion and storage devices	12+2
3	12 (Thesis-Stage 1)			12
4	12 (Thesis-Stage 2)			12
Total (1-4 Semester)				48+4= 52

Core courses

1. Fundamentals of Electrochemistry
2. Non Conventional Energy Sources and Environment
3. Energy Management
4. Solid State Chemistry/Material Synthesis and Characterization
5. Energy Conversion and Storage
6. Power Systems Engineering and Converters for Renewable Applications
7. Energy Audit,
8. Lab-1: Material Synthesis and Characterization
9. Lab-2: Energy Conversion and Storage Devices

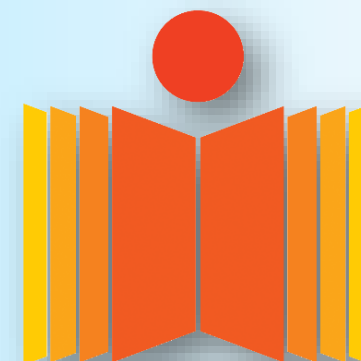
Elective courses

1. Combustion Engineering, 2. Heat and Mass Transfer/ Transport Phenomena, 3. Advance Thermodynamics, 4. Bio-energy, 5. Batteries and Supercapacitors, 6. Solar Energy, 7. Fuel Cell, 8. Wind/Geothermal Energy, 9. Hydrogen Economy, Energy Systems Analysis, 10. Optimization, Control and Instrumentation, 11. Numerical Methods , 12. Electric Vehicles, 13. Nuclear Energy , 14. Bio-refinery, 15. English Communication
16. Industry lecture series



2 Year M.Tech. Program In “Energy Science and Technology” (Interdisciplinary)

Information Brochure



Indian Institute of Technology
Hyderabad
Kandi, Sangareddy-502285, TS
India

Admission procedure

Eligibility criteria

1. B. Tech/ BE in BT/ Chemical/ Civil/ EE/ ME/ MSME/ M.Sc. with CY/PH with a valid GATE Score
2. GATE Subjects: AE/BT/CH/CE/CY/ EC /EE/ IN/ ME/MN/MT/PE/PH/PI/XE-C/XE-E/XE-F/XE-H/XL-P
3. GATE qualification is exempted for industry sponsored candidates with a minimum of two years' experience OR for IIT undergraduates with minimum CGPA of 8.0.

How to apply and selection criteria?

Eligible Candidates may register and apply through COAP portal. Department may conduct a written exam and/or an interview. Reservations as per the MHRD, GoI norms will be applicable. MHRD scholarship will be available for GATE qualified selected candidates. Total intake under GATE is 10, and Sponsored is 5.

About the program

M. Tech. in Energy Science and Technology (EST) is an interdisciplinary program being offered from the academic year 2020. The goal of the program is to impart and foster knowledge in energy research and development and state-of-the-art approaches to shape the future of energy. Broad areas include, but are not limited to: Fossil Fuels, Power Engineering, General Energy, Renewable Energy, Energy Storage, Nuclear Energy and so forth. The intake per year under this 2-year M.Tech. program is 10 seats (MHRD) + 5 (Sponsored).

About the department

This is a new interdisciplinary course starting from the academic year 2020-2021 at IITH. The Department of Chemistry will be initially coordinating this course. Faculty members from different departments across the Institute with expertise in Energy, Materials and Technology serve as instructors for the diverse curriculum.

About the Institute

IIT Hyderabad is one among the 2nd generation of IITs started by the Govt. of India in 2008. As of date, IITH offers B. Tech., M. Tech, M. Sc., M. Phil, M. Des and Ph.D. programs in Engineering, Science, Liberal Arts and Design. The very foundation of IIT Hyderabad is based on research and innovation. The vibrant research culture is evident from the number of patents and publications that IITH is generating. The institute has about 220 faculty and around 3000 students. IITH has a unique holistic educational ecosystem that offers interactive learning with a highly, flexible academic structure and encourages cutting-edge research, strong industry collaboration, and entrepreneurship.

EST facilities

- Materials synthesis apparatus
- Autoclave reactor, fixed bed reactor
- Battery assembly and electrochemical characterization
- Solar cell fabrication and characterization
- Scanning Electrochemical Microscopy (SECM)
- XRD & SAXS
- SEM-EDAX, TEM, XPS
- FTIR, UV-Vis NIR, Atomic Force and Raman Microscopy
- Chemisorption, GC, GC-MS, LCMS
- Thermal Studies (TGA, DSC)
- DC-DC converters, DC-AC converters
- Three-phase voltage source converters
- Bidirectional converters
- Multipole multiphase induction machine

EST participating departments

- Chemical Engineering
- Chemistry
- Electrical Engineering
- Materials Science and Metallurgical Engineering

Industry participants

- PURE EV, Hyderabad
- NED Energy Ltd., Hyderabad
- HBL Power Systems Limited, Hyderabad

Contact

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