

Placement Brochure

2022-2023

MTech

E-Waste Resource Engineering & Management



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



Messages

Prof. B.S. Murty, Director, IIT Hyderabad



This MTech. program in E-waste Resource Engineering & Management is not only unique but also a timely initiative of IIT Hyderabad jointly with C-MET Hyderabad. The students will get practical learning from C-MET which will be equally complemented by theoretical knowledge by IITH's Academicians. This MTech. program will catalyze the efforts toward E-waste management in the country and worldwide and will provide the necessary support for several Government initiatives in this direction such as Skill India, Swachh Bharat, and Waste-to-Wealth initiatives.

Dr. Ratheesh Ravendran, Director, CMET Hyderabad

To empower prospective students to stay abreast of the latest innovations and practices in E-waste Management, IITH, and C-MET, Hyderabad jointly started two years MTech program on E-waste Resource Engineering and Management, the first of its kind in the country. Our creative education strategies and innovative research approaches have spawned a conducive ecosystem for nurturing intellectual alertness among students and forging constructive collaborations with prospective E-waste recycling.





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About the Program



MTech in E-waste Resource Engineering & Management (EREM) is being offered from the academic year 2020, jointly by IIT Hyderabad and C-MET.

Objective

Study of various technologies for Recycling E-waste including the Recovery of Metals, Life Cycle Analysis, Supply Chain Management, and role of Artificial intelligence-based Techniques in E-waste.

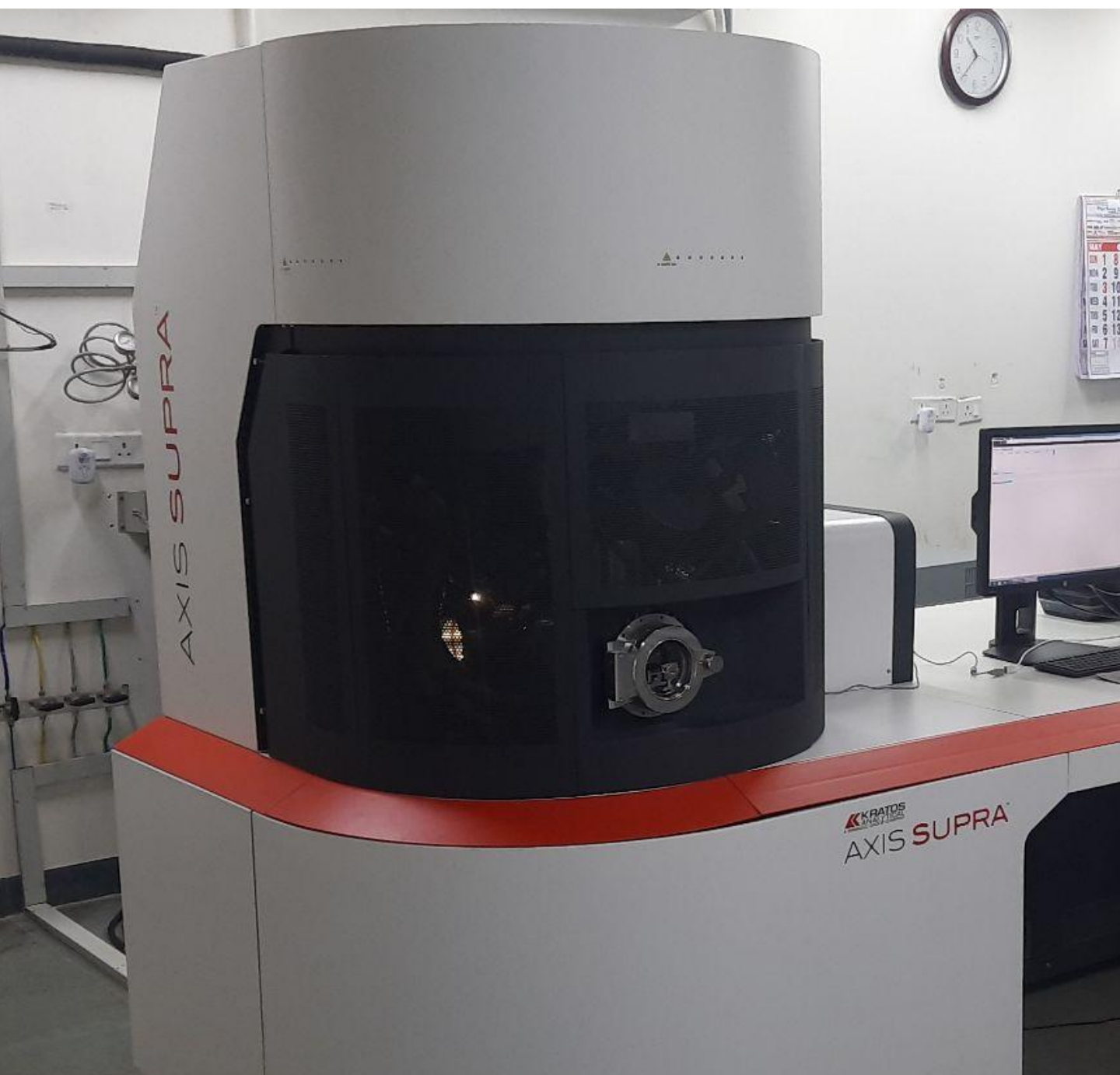
Mission

To manage E-waste in an Eco-friendly way and to use it as a Resource for Circular Economy which directly leads to Sustainable Development.

Research Facility

CMET :- It comprises a PCB recycling plant with a capacity of 100 kg/day. Besides, RoHS testing facilities with state-of-art of technology for evaluation of metal composition in shredded and segregated components of E-Waste by non-destructive techniques such as XRD, SEM XRF, FTIR, TGA/DTA, etc., and chemical evaluation by ICP-OES, AAS, UV-Vis, ICP-MS, GCMS, etc. are present.

IIT Hyderabad: Similar material characterization facilities and many high-end pieces of equipment like XPS, TEM, DSC, GPC and HPLC are available at IIT-Hyderabad



Lab Facilities



Inductively Coupled Plasma Mass Spectrometer



UV-Visible Spectroscopy



Atomic Absorption Spectrometer



Inductively Coupled Plasma Optical Emission Spectrometer



Ion-Chromatograph



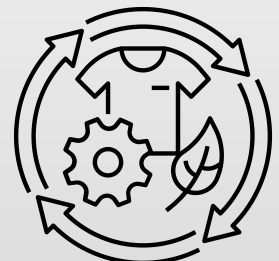
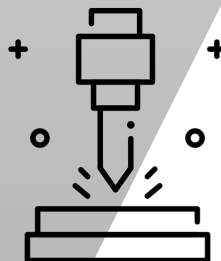
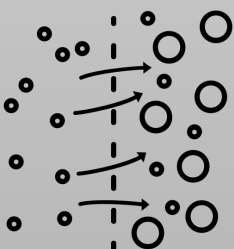
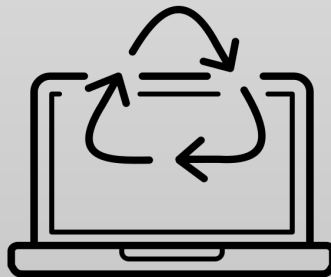
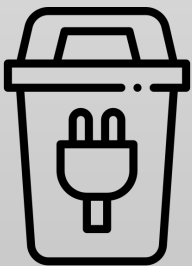
Gas Chromatography Mass Spectrometer



EDXRF

Courses

Hydrometallurgy
Electrometallurgy
Introduction to Waste Management
Introduction to Machine Learning for process system
Instrumentation for Efficient Recycling and Automation
Molecular Thermodynamics
E-waste Recycling Methods
Instrumentation & Characterization
Design Concepts of Project Capacity to a Viable Scale
SWOT Analysis and Risk Management
Global Government Policies on E-Waste Management
Supply Chain Management & Circular Economy
Industry Lecture on E-Waste Management
Business Calculations in E-waste management
Trace Metal Analysis



Why You Should Hire Us?

INDIA's first and only program on E-Waste Resource Engineering and Management in collaboration with C-MET, supported by the Ministry of Electronics and Information Technology (MeitY), Govt. of India.

Application of AI & ML: Effective use of Artificial Intelligence and Machine Learning In the Collection, Dismantling, and Optimization of problems of E-Waste Management.

Highly trained and motivated students with in-depth expertise in Electronic Waste Management and Processing Techniques, Resource Efficiency, Circular Economy, Sustainability Development, Life Cycle Analysis(LCA), Supply Chain, Extended Producer Responsibility (EPR), Spent Battery Management (reuse) (BMS).

The State of Art Research Infrastructure- IIT Hyderabad is an Institute of National Importance focusing on cutting-edge research. Similarly, C-MET is the only govt. organization to own both BIS and NABL accredited labs for Restriction of Hazardous Substances (RoHS) compliance with World-class Testing Facilities.

Interdisciplinary Background of students having Bachelor's Degrees from various streams including Electrical, Electronics, Mechanical, Environment, Chemical Engineering, and Physics.

World-Renowned Faculties not only include highly qualified Professors from IIT Hyderabad but also excellent R&D scientists working under C-MET.

One to One Focus- Being a batch of only 10 Students made us possible to receive individual attention from a particular respective faculties which is a major contributing factor to our overall development of theoretical concepts as well as practical works.

The industry Lecture series, Webinars & Conferences gave us a good understanding of real technical problems faced by industry people. We interacted with experts in the E-waste field and had brainstorming sessions with them, which provided us with a broader perspective on the global market demand in the E-waste Industry.

Soft Skills like Communication skills, Good Teamwork and Coordination, Problem-solving skills, Leadership Skills, Work Ethics, Interpersonal Skills, and the Capability to work under pressure are well instilled into us while engaging in various club and Extra-curricular activities which are integral parts of IIT Hyderabad student life.

Our Faculties

Considering the truly interdisciplinary nature of the program, faculty members from various departments (Chemical Engineering, Materials Science & Metallurgical Engineering, Civil engineering, Electrical Engineering, Physics, Chemistry) will participate in teaching and supervising the projects along with a team of C-MET scientists.



Prof. Chandra Shekhar
Dept. of Chemical



Dr. Ambika S
Program Coordinator



Prof. Saptarshi Majumdar
Dean (Academics)



Prof. Kishalay Mitra
HOD, CHE



Prof. Ch. Subrahmanyam
Dept. of Chemistry



Prof. Suhash Ranajn
HOD, MSME



Dr. Abhinav Kumar
Faculty In-charge, OCS



Dr. Ashok Kamraj
Dept of MSME



Prof. Bhuvanesh
HOD, ES

C-MET Faculties

(Centre for Materials for Electronics Technology, GSI)



Dr. Sandip Chatterjee
Director & Scientist
F, MeitY



Dr. Ratheesh Ravendran
Director, C-MET Hyderabad



Dr. NR Munirathnam
Former DG, C-MET



Dr. Rajesh Kumar
PCB Recycling & Li-Ion
Battery Lab



Dr. Y. Purushotham
Dept. of Skill
Development



Dr. Ajay Kaushal
Lithium-Ion Battery
Lab



Dr. U. Rambabu
RoHS Lab



Dr. D.S. Prasad
Dept. of Solar Cell

Graduating Batch Profile 2021-2023



Sourabha Patel

Measuring the circular Economy and Improving the Legal Framework in Indian E-waste flow and waste management sector.



Agathiyan Susil R

Quantification of benefits while designing a circular Economy based E-Waste Supply Chain.



Toshik Ghormare

Effective utilization of AI in Si Solar cell recycling process.



Bhupendra Gehlot

Recovery of silver from scrapped silicon-based solar cells through an electrochemical approach



Combining an AI algorithm and a novel vehicle routing optimization for sustainable E-waste collection.

Pooja Narharirao Muley



Life cycle analysis of
E-waste processing
routes

Dhvani Bankim Purohit



A critical
thermodynamic
assessment of PCB
recycling in secondary
Cu smelting process

Praveen Tikare



Life Cycle Assessment of
Lithium-Ion Batteries

Anuj Sharma



Recovery of silver, tin,
lead and copper from
solar interconnects or
ribbon through an
electrochemical approach

Shubham Sharma



Machine
Learning-based
reuse of Lithium-ion
battery

Ajay Bachiphale

Recent Projects

Extraction
of Rare Earth
Elements from the
spent Permanent
Magnet

Recovery of
cobalt from spent
Lithium-ion Battery

Carbon is
Derived from
Waste PCBs for
Lithium-ion
Batteries

Electronic
component
detection from
waste PCBs using
Computer Vision

Application of
Deep Learning on
retired Lithium-ion
batteries

Get In Touch

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Praveen Tikare

Cont. No – 8815252356

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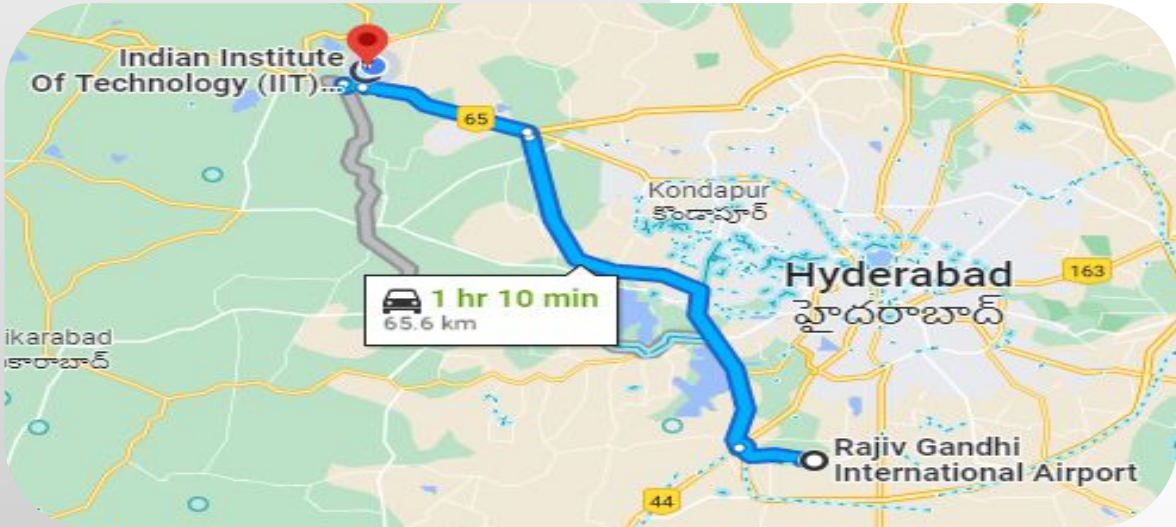
LinkedIn: [Praveen Tikare](#)

HOW TO REACH US

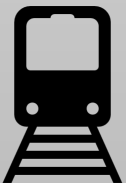
IITH can be reached by Taxi

Meru Cabs: 040-2424-2424 | Taxi for Sure: 040-4040-9090

Ola Cabs: 040-3355-3355 | Yellow Cabs: 404-4646-4646



Nearest Airport: Rajiv Gandhi International Airport



Nearest Railway Station Secunderabad