60 YEARS OF EXCELLENCE

ESTD. 1964

CH2026

DEPARTMENT OF CHEMICAL ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

60 years of excellence (Estd. 1964)



Head of the Department | chemical_hod@nitw.ac.in | +91 870 246 2600 | www.nitw.ac.in/chem

CONTENTS

01



OVERVIEW OF THE DEPARTMENT

Vision, mission, key highlights, academic programs and infrastructure.

02



STUDENTS

Information on student intake, enrollments, diversity, activities and achievements.

03



FACULTY

Details of faculty members, expertise, qualifications and accomplishments.

04



RESEARCH

Research areas, ongoing projects, facilities, publications and collaborations.

05



CULTURE

Department culture, values, student life, events and outreach activities.

VISION AND MISSION OF THE DEPARTMENT

VISION

To win a global recognition in research and training students for meeting the challenging needs of chemical & allied industries and society.

MISSION

Providing high quality undergraduate and graduate education in tune with changing needs of industry.

Generating knowledge and developing technology through quality research in frontier areas of chemical and interdisciplinary fields.

Fostering industry–academia relationship for mutual benefit and growth.



1. Overview of the Department

Major Milestones

1964 — Started 5 year B.Tech program

1968 — Started M.Tech in CPD with UNDP Assistance

1987 — M.Tech (CPD) was renamed as CAPED

2004, 06&15 — IICHE Best student chapter Award

2014 — Golden Jubilee Year (Started INCEEE series with INCEEE-2015; ChemFlair 2015; Alumni meet)

2016 — M.Tech CAPED renamed as Chemical Engineering.

2018 — Moved to new building

2022 — SCHEMCON

2023 — Started M.Tech in SEG&ST

2024-2025 — Diamond jubilee year (INCEEE 2025, Lecture series, ASCENT 2025, Alumni Meet)

2025-2026 — Dual Degree (Integrated BTech and M.Tech) in Chemical Engineering

2025-2026 — Dual Degree PhD program with University of Saskatchewan, Canada

Department of Chemical Engineering

PROGRAMMES OFFERED

Department of Chemical Engineering

1 B.TECH CHEMICAL ENGINEERING

Duration: 4 Years

- Strong foundation in core sciences
- Comprehensive Chemical Engineering curriculum
- Industrial training & project exposure
- Preparatory pathway to higher studies

2 DUAL DEGREE (B.TECH + M.TECH)

Duration: 5 Years

- Integrated UG–PG programme
- Advanced core & elective courses
- Early research orientation
- Pathway to leadership & innovation

3 M.TECH CHEMICAL ENGINEERING

Duration: 2 Years

- Advanced Transport Phenomena
- Process Simulation & Modeling
- Data Analytics & Machine Learning
- Electives for specialization

4 M.TECH SUSTAINABLE ENERGY GENERATION & STORAGE TECHNOLOGIES (SEG&ST)

Duration: 2 Years

- Hydrogen generation & storage
- Energy storage systems
- Sustainable energy engineering
- Drives by clean energy solutions

DEPARTMENT OF CHEMICAL ENGINEERING

ESTD. 1964

60

YEARS OF EXCELLENCE

5 M.TECH CONTROL & AUTOMATION (JOINT PROGRAMME BY CHEMICAL ENGINEERING & EE)

Duration: 2 Years

- Process control & automation
- Industrial control systems
- Instrumentation & intelligent systems
- Smart manufacturing & Industry 4.0

6 PH.D. CHEMICAL ENGINEERING

Full-time / Part-time

- Interdisciplinary research
- Industry sponsored research
- State-of-the-art research facilities
- Pathway to academic & industrial research leadership

ACADEMIC PATHWAY
From UG to Doctoral Research

INDUSTRY ORIENTED
Bridging theory with practical applications

RESEARCH DRIVEN
Hands-on learning & innovation

COLLABORATION
Internships & live projects & placements

GLOBAL EXPOSURE
International collaborations & academic partnerships

CAREER EXCELLENCE
Shaping future leaders & innovators

2. STUDENTS

STUDENT STRENGTH

UG + DD	441
PG	53
Ph.D	65
TOTAL STUDENTS	559

PLACEMENT PERCENTAGE (%)



Average Placement (7 Years); **86%**

STUDENT ACHIEVEMENTS



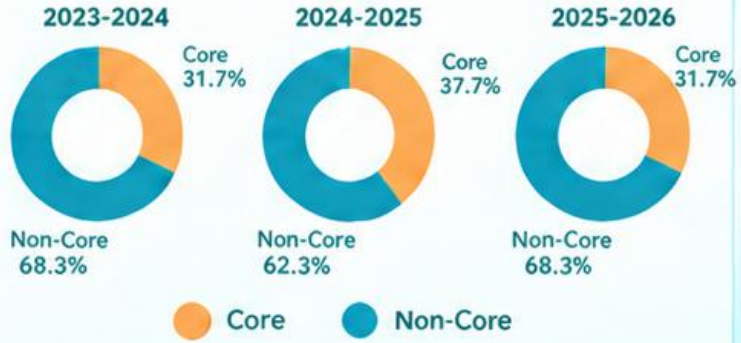
ANNUAL SALARY PACKAGE (IN LAKHS)



HIGHEST PACKAGE ₹46 LPA

AVERAGE PACKAGE ₹12 LPA

CAREER DISTRIBUTION



OUR TOP RECRUITERS

ExxonMobil, Coromandel, Chevron, Bharat Petroleum, Reliance Industries Limited, HP, DCM SHRIRAM (Growing with trust), JUBILANT FOODWORKS, Mankind (Serving Life), AVEVA, Cipla (Caring for Life), SAINT-GOBAIN, SUVEN PHARMA

FACULTY



Dr. V. Ramsagar
Professor
Ph.D. (IIT Delhi)
Head of Department

Specializations
- CO2 Capture Technologies – Calcium Looping & Chemical Looping
- Combustion, Green Energy Generation Technologies
- Chemical Process Scheduling
- Process Modelling & Simulation
- Hybrid Separations
- Heat Exchanging Networks



Dr. Shirish H Sonawane
Professor (HAG)
Ph.D. (North Maharashtra University)

Specializations
- Acoustic and hydrodynamic cavitation
- Nanomaterials for energy storage devices
- Wastewater
- Advanced polymeric coatings and hybrid membrane processes
- Process intensification using microreactors



Dr. Anand Kishore Kola
Professor (HAG)
Ph.D. (NIT Warangal)

Specializations
- Environmental Engineering, Energy
- Advanced Separation processes
- Modeling, Simulation and Optimization
- Biochemical Engineering
- Wastewater treatment
- Membrane separations
- Reactive distillation, Inverse fluidization
- Pharmaceuticals & nanotechnology



Dr. A. Venu Vinod
Professor
Ph.D. (NIT Warangal)

Specializations
- Fluidized bed bioreactors
- Biological Wastewater Treatment
- CFD
- Heat Transfer using Nanofluids
- Spout-Fluid bed



Dr. A. Sarath Babu
Professor
Ph.D. (NIT Warangal)

Specializations
- Modeling, Simulation and Optimization
- Process Simulation using Aspen
- Reaction Engineering
- Thermodynamics
- Energy management and CO2 Capture



Dr. S. Srinath
Professor
Ph.D. (NIT Warangal)

Specializations
- Thermal conversion of solid waste Biofuels
- Catalysis
- Process intensification
- Process modeling and simulation
- Nanotechnology
- Micro reactors



Dr. P.V. Suresh
Professor
Ph.D. (IIT Madras)

Specializations
- Fuel cells
- Chemical Looping Combustion
- CO2 capture technology
- Sustainable Hydrogen Generation
- Computational Fluid Dynamics
- Flow Batteries
- Modeling and Simulation



Dr. Vidyasagar Shilapuram
Associate Professor
Ph.D. (IIT Madras)

Specializations
- Chemical Engineering and allied areas



Dr. Murali Mohan Seepana
Associate Professor
Ph.D. (IIT Delhi)

Specializations
- Energy Storage and Energy Conversion Technologies
- Fuel Cells and Batteries
- Wastewater Treatment
- Membrane Separations



Dr. G. Uday Bhaskar Babu
Associate Professor
Ph.D. (IIT Kharagpur)

Specializations
- Modelling and Simulation
- Process Intensification
- Process Control
- Data-driven control
- Factional order modelling and control
- Fuel cell Modelling and Control strategies
- Wastewater treatment

APPLICATIONS | Process Design & Simulation | Process Optimization | CFD & Multiphysics | Process Control & Automation | Dynamic Simulation | Data Analytics & Visualization | Digital Twin & AI Integration

FACULTY



Dr. Rajmohan K. S.

Associate Professor
Ph.D. (IIT Madras)

Specializations

- Photocatalysis, Advanced Nanocomposites for Energy & Water, Microreactors, Hydrodynamic cavitation, High-temperature Fuel Cells, Redox Flow Batteries & Advanced Metal-air Batteries
- Electrocatalysis, CO2 Sequestration
- Hydrogen Production & Storage,
- Biochemical Engineering, AOP, Hybrid membrane processes
- CO2 Reduction into hydrocarbons



Dr. Leela Manohar Aeshala

Associate Professor
Ph.D. (IIT Guwahati)

Specializations

- Electrochemical Reduction of CO2
- Polymer Electrolytes, Clean Energy,
- Green Hydrogen Production



Dr. Raghu Raja Pandiyan K.

Associate Professor
Ph.D. (IIT Kharagpur)

Specializations

- Polymer 3D Printing, High Performance Thermoset Composites; Liquid Composite Moulding Processes
- Materials Process Modeling and Simulation; Materials Performance Analysis, Green Hydrogen



Dr. Manohar Kakunuri

Associate Professor
Ph.D. (IIT Hyderabad)

Specializations

- Synthesis of Carbon Nanomaterials (Carbon thin films, Nanoparticles, and Nanofibers)
- Catalytic Graphitization, Carbon Xerogels
- Energy Storage Devices (Li/Na/Al-ion Batteries, Supercapacitors)
- Electrospinning, Micropatterning (Photolithography), Soft lithography
- Multi-scale Structures for Tunable Surface Wettability



Dr. Praveen Kumar Bommineni

Assistant Professor Gr-I
Ph.D. (IISc Bangalore)

Specializations

- Nucleation, crystallization, and self-assembly of colloidal particles
- Phase diagram calculations using computer simulations



Dr. Anjana P. A.

Assistant Professor Gr-I
Ph.D. (NIT Surathkal)

Specializations

- High-Entropy Alloys, Pyrochlore Materials, Ceria-based materials
- Electrolytes for Solid Oxide Fuel Cells
- Ag-based catalysts, oxidation reactions
- Waste-to-energy, pyrolysis reactions,
- Reaction kinetics



Dr. Naresh Thota

Assistant Professor Gr-I
Ph.D. (NUS Singapore)

Specializations

- Reactive Distillation, Process Modelling and Simulations, Water Treatment Process Control
- Molecular Simulations, Self-assembly
- Amphiphilic Peptides
- Drug Delivery, Controlled Release Cargos,
- Water Desalination



Dr. P. Sampath Kumar

Assistant Professor Gr-I
Ph.D. (University of Hyderabad)

Specializations

- Energy & Fuels, Gas Sensors
- Waste to Energy, Safety Engineering
- Energy Storage Devices
- Drug Development and Delivery Systems

APPLICATIONS

Process Design & Simulation | Process Optimization | CFD & Multiphysics | Process Control & Automation | Dynamic Simulation | Data Analytics & Visualization | Digital Twin & AI Integration

Department of Chemical Engineering

FACULTY



Dr. Ramya Araga
Assistant Professor Gr-I
Ph.D. (IIT Hyderabad)

Specializations
- Synthesis of Nanomaterials, Composites, Advanced Oxidation, Processes (AOPs), Photocatalysis, Wastewater Treatment, Energy Storage Devices.



Dr. Phani Kumar Pentyala
Assistant Professor Gr-I
Ph.D. (IIT Kharagpur)

Specializations
- Computational Catalysis,
- Computational Materials Science,
- Carbon Capture, Hybrid MOF Materials,
- High-entropy Alloys, Machine Learning in Material Properties Finding.



Dr. Ch. Anil
Assistant Professor Gr-II
Ph.D. (IISc Bangalore)

Specializations
- Heterogeneous Catalysis, Syngas and Hydrogen, Reforming, Catalytic Conversion of CO_2, CO abatement,
- Reaction Kinetics and Mechanism Development, Pharmaceutical Molecules Crystallization, Polymorphism, Particle Engineering.



Dr. Raj Kumar Verma
Assistant Professor Gr-I
Ph.D. (IIT Roorkee)

Specializations
- Process Intensification, Microfluidics,
- CO_2 to Value-Added Chemicals,
- Energy from Biomass and Waste,
- Biodiesel, Computational Fluid Dynamics, Modelling and Simulation.



Dr. Mohit Trivedi
Assistant Professor Gr-II
Ph.D. (IIT Kanpur)

Specializations
- Computational Fluid Dynamics (CFD) and the behavior of complex fluids, including non-Newtonian, viscoelastic, and viscoplastic fluids.



Dr. Vamshi Krishna
Assistant Professor Gr-II
Ph.D. (IIT Guwahati)

Specializations
- Granular Mechanics (DEM),
- Hypersonic Flows.



Dr. S.V.G. Kumari
Assistant Professor Gr-II
Ph.D. (IIT Guwahati)

Specializations
- Biodegradable Packaging, Food Packaging, Drug Delivery, Polymer Nanocomposites.



Dr. Pallavi Rajaram Katre
Assistant Professor Gr-II
Ph.D. (IIT Hyderabad)

Specializations
- Colloidal and Non-Colloidal Suspensions,
- Viscoelastic Fluids, Complex Fluids and Rheology,
- Droplet Dynamics, Droplet Coalescence, Breakup and Evaporation, Interfacial Fluid Dynamics.



Dr. Satyam Gupta
Assistant Professor Gr-II
Ph.D. (IIT Kanpur)

Specializations
- Heterogeneous Catalysis and Chemical Reaction Engineering.

Adjunct Faculty/ Professor of Practice



Prof. Pisupati V. Sarma
Pennsylvania State University, USA



Prof. Ajay K. Dalai
University of Saskatchewan, Canada



Dr. Rajendra Kumar Sharma
Professor of Practice
Director of SPEL Technologies, Pune

APPLICATIONS

- Process Design & Simulation
- Process Optimization
- CFD & Multiphysics
- Process Control & Automation
- Dynamic Simulation
- Data Analytics & Visualization
- Digital Twin & AI Integration

Department of Chemical Engineering

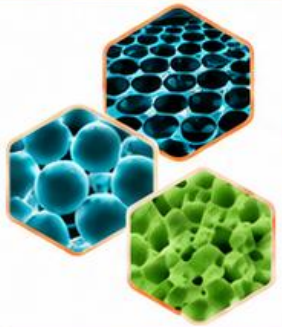
RESEARCH GROUPS

Interdisciplinary Research for Sustainable and Advanced Chemical Technologies

ADVANCED MATERIALS

KEY AREAS

- Nanomaterials
- Functional Materials
- Catalytic Materials
- Energy Materials
- Surface Engineering
- Advanced Characterization



APPLICATIONS

- Energy Storage
- Catalysis
- Sustainable Technologies
- Healthcare Applications

SEPARATIONS & PROCESS INTENSIFICATION

KEY AREAS

- Distillation & Hybrid Separation
- Crystallization Engineering
- Membrane Processes
- Reactive Separations
- Process Intensification
- Pharmaceutical Process Development



APPLICATIONS

- API Manufacturing
- Specialty Chemicals
- Sustainable Manufacturing
- Industrial Scale-Up

DEPARTMENT OF CHEMICAL ENGINEERING

RESEARCH ECOSYSTEM

SUSTAINABLE ENERGY TECHNOLOGIES

KEY AREAS

- Hydrogen Generation & Storage
- Fuel Cells
- Electrochemical Energy Storage
- Carbon Capture & Utilization
- Renewable Energy Systems
- Sustainable Process Development



APPLICATIONS

- Green Hydrogen
- Batteries
- Net-Zero Technologies
- Clean Energy Systems

PROCESS SYSTEMS & CONTROL ENGINEERING

KEY AREAS

- Process Modeling
- Process Simulation
- Optimization
- Advanced Process Control
- Digital Twin Technology
- AI & Data Analytics

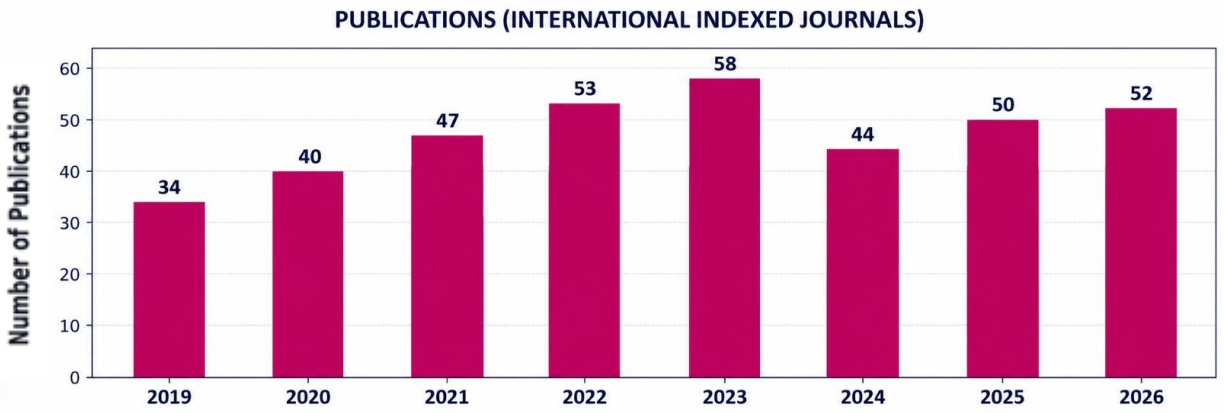


APPLICATIONS

- Industry 4.0
- Smart Manufacturing
- Process Optimization
- Intelligent Operations

RESEARCH EXCELLENCE | HIGH IMPACT PUBLICATIONS | INDUSTRY SPONSORED RESEARCH PROJECTS | INTERNATIONAL COLLABORATIONS | TECHNOLOGY DEVELOPMENT

PUBLICATIONS (INTERNATIONAL INDEXED JOURNALS)



RESEARCH IMPACT (CUMULATIVE & PER FACULTY)

378
Total Publications

16,486
Total Citations

66
h-index

27
Research Faculty
(Full Time Equivalent)



PATENTS / TECHNOLOGY TRANSFER

Granted:	**7** (Intl: 6 | India:1)	• 04 to Gigatto Granules
Filed:	**16** (Intl: 5 | India:11)	• 02 to Innovative Filtrex
Technology Transfer:	**09**	• 01 to IGMH

PUBLICATION PARTNERS

ELSEVIER | SPRINGER NATURE

IOP Publishing

MDPI | WILEY | Taylor & Francis Taylor & Francis Group | ASC

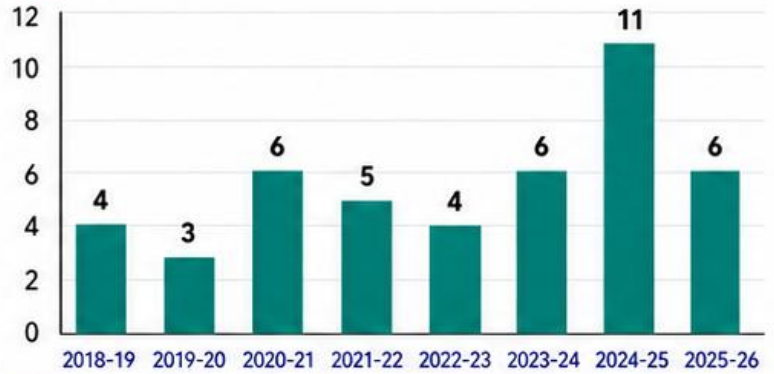
Advancing Knowledge | Driving Innovation | Creating Impact

Through Research Excellence and Collaboration

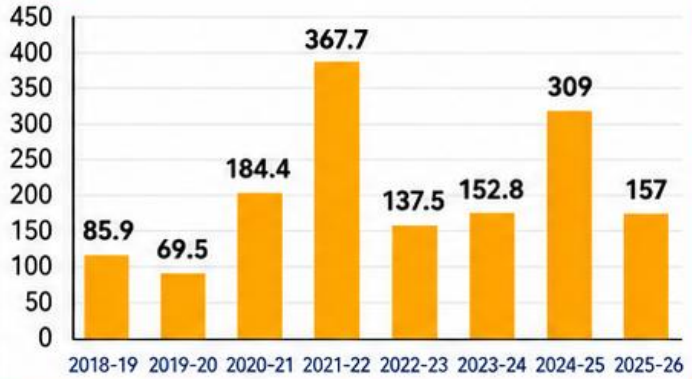
4. RESEARCH | Key Highlights

Department of Chemical Engineering

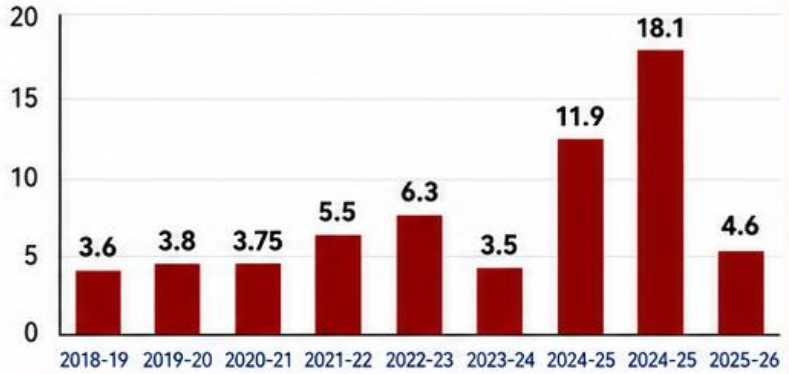
NUMBER OF SPONSORED PROJECTS



SPONSORED PROJECTS (Rs. IN LACS)



CONSULTANCY PROJECTS (Rs. IN LACS)



MoU/NDA

MoU/NDA

S. No.	Institute/Industry
1	University of Saskatchewan, Canada
2	Mankind Pharma, India
3	Biolabmate composite Inc., Canada
4	Tata Motors, India
5	Tatva Chintan Pharma Chem Limited, India

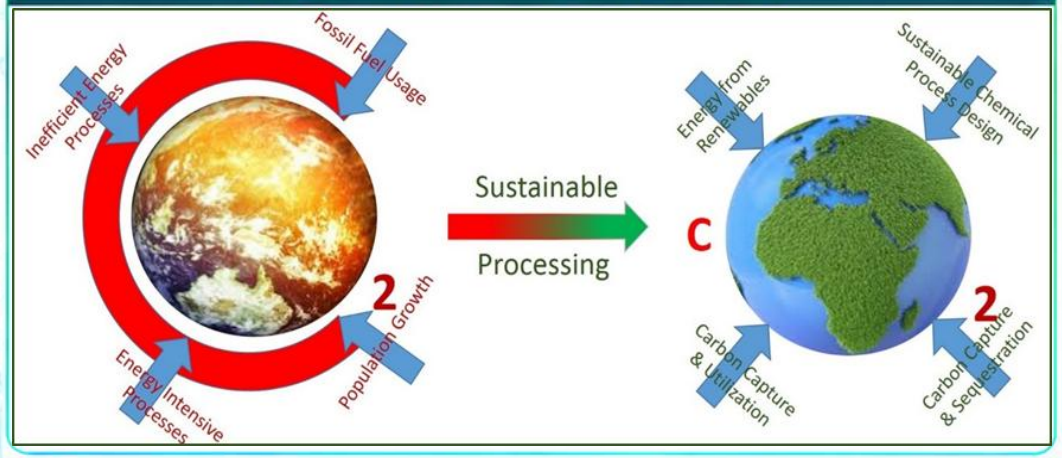
120 lakhs FIST Funding for
Hyphenated System of TGA-DTA/DSC-IR-GC-MS

MAJOR RESEARCH FUNDING & RECOGNITIONS

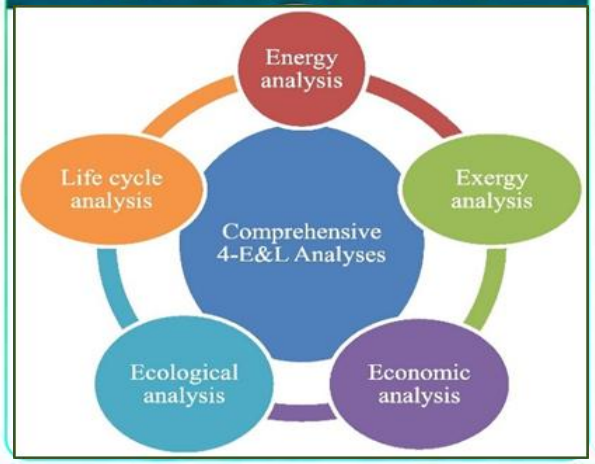
- **SPARC** — Scheme for Promotion of Academic and Research Collaboration
- **DRDO** — Defence Research & Development Organisation
- Department of Science & Technology Government of India
- **IMPRINT** — Impacting Research Innovation and Technology
- **SERB** — Science and Engineering Research Board
- **MHRD** — Government of India
- **BRNS** — Board of Research in Nuclear Sciences
- **SAP-DST** — DST – FIST
- **HBL** — HBL Power Systems Limited.
- **DMRCL** — Shaping Dreams
- THE ROYAL SOCIETY
- **DST INSPIRE**
- DEPARTMENT OF SCIENCE & TECHNOLOGY

SUSTAINABLE ENERGY TECHNOLOGIES

CO_2 CAPTURE AND UTILIZATION



SUSTAINABLE ENERGY SYSTEM

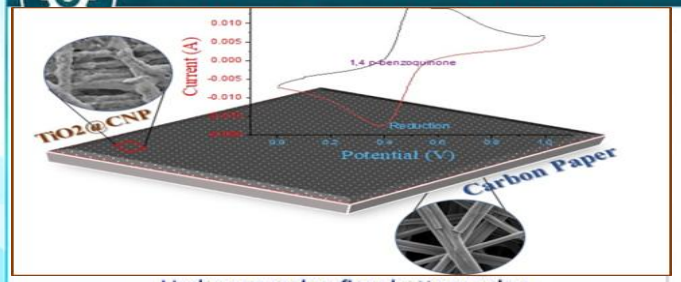


CO_2 capture and utilization

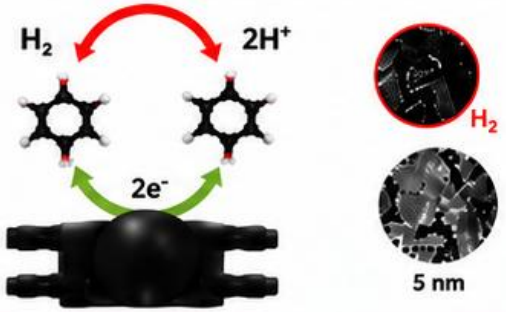
- ✓ Proposed novel covalent triazine based porous organic polymers for carbon capture (CO_2-selective)
- ✓ Methane storage enhancement in CO_2 capture materials
- ✓ Proposed CO_2 capture and borohydride regeneration using waste-derived cathartic via cyclic route
- ✓ Fuel cells – PEMFC, SOFC

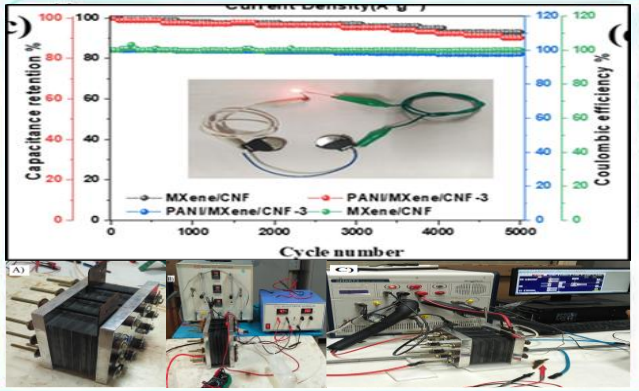
- Batteries – Li, Na, Al, Mg, P/S
- Supercapacitors

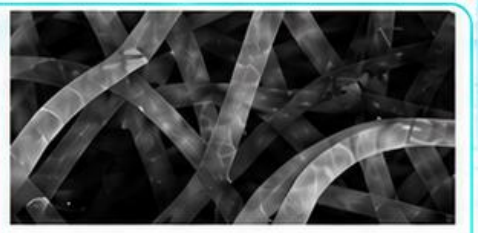
POWER AND COGENERATION WITH CO_2 CAPTURE AND MANAGEMENT



Hydrogen redox-flow battery using non-precious electrocatalysts







- **Nickel-free** Fe catalyst for Methane/Carbon Nanotube Ternary Composite Electrode for Supercapacitors
- PEM fuel cell stack

Focus on clean energy and carbon management technologies

CO_2 capture, conversion and utilization for a sustainable future

Development of advanced materials for energy storage and conversion

Innovative solutions for fuel cells, batteries and supercapacitors

Strong research output and industry-relevant impact

Department of Chemical Engineering

SEPARATIONS & PROCESS INTENSIFICATION

- Demonstrated Pilot-scale Hybrid Wastewater Treatment System with Hydrodynamic Cavitation and Bio-surfactant for Recycling of Textile Effluent *(Collaborations with Prime Textiles, Textile Park, Rampur)*

- Demonstration of Technology for treatment of rain harvested water lakes in Warangal, Telangana state. (DST WTI project)

- Candle soot nanoparticle embedded nanofibrous membrane for separation of micible and immiscible oil/water mixtures

Demonstration of technology for textile effluent treatment


Equalization Tank


pH Adjustment


Hydrodynamic Cavitation Unit


Bio-surfactant Dosing Unit


Treated Water

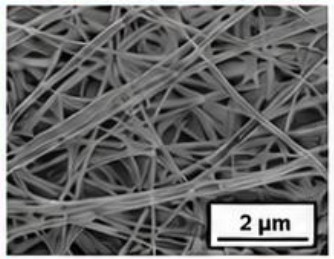

Aeration Tank

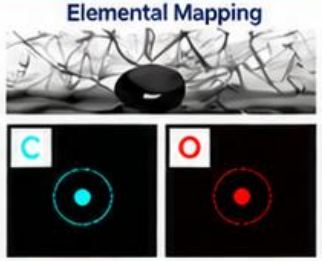

Pilot Scale Treatment System


Membrane Filtration Unit


Treated Water | Raw Water

Candle soot nanoparticle embedded nanofibrous membrane






Oil/Water Mixture | Treated Water

Technology demonstration for lake water cleaning at Padmakshi gutta, Warangal


Polluted Lake Water


Pilot Scale Treatment System


Cleaned Lake Water

Focus Areas

- Advanced separation technologies
- Process intensification and optimization
- Sustainable wastewater treatment solutions
- Industry collaborations for real-world impact

Department of Chemical Engineering

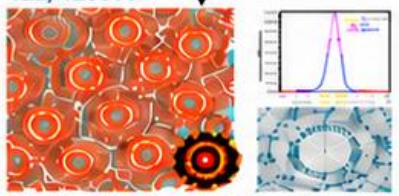
ADVANCED MATERIALS

- Development of 3D Printable Composite Thermal Shields using Photocure Short Fibre Nano Hybrid Resins through Reactive Additive Manufacturing Process
- Development of One-Shot Integrated Thick Sectioned Composite Parts using Semi-Cured Composite Laminates

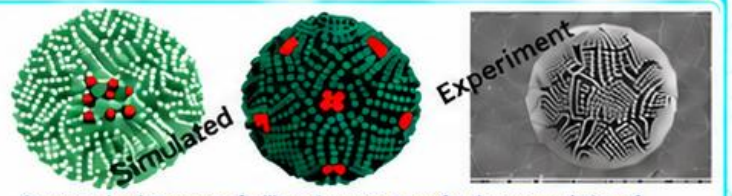
Material design using Molecular simulations



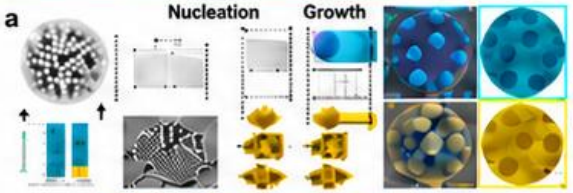
Phys. Rev. Lett. 122, 128006



Polydopamine spheres self-assembly into complex crystal phases based on polydispersity



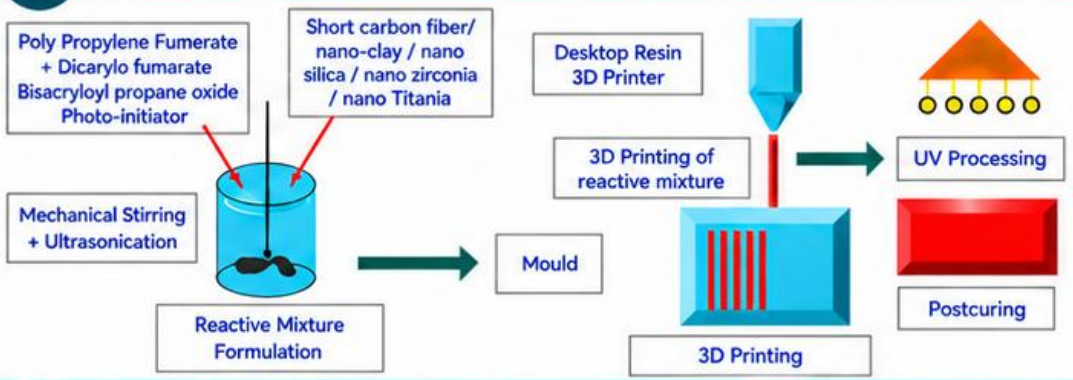
Coarsegrained geometry facilitated energy traps for the accumulation of impurities in various stacked and structured morphologies formed in spherical confinement



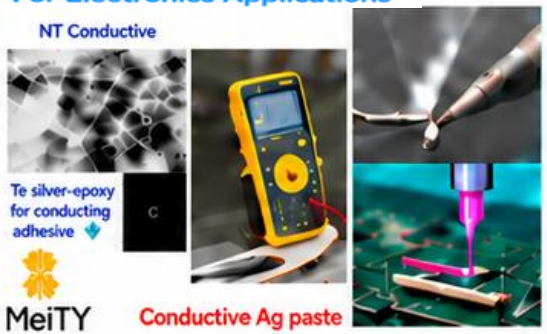
Nature Communication (14) 5 (2023)

Early stage bifurcation of crystallisation in sphere

Reactive Additive Manufacturing of Composite Parts

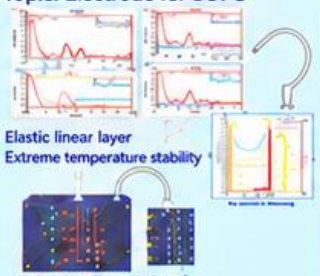


Conducting Adhesives For Electronics Applications



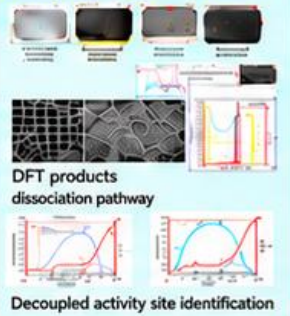
Project: SERB SRG

Topic: Electrode for SOFC



ISRO RESPOND Project

Catalyst for H_2O, dissociation

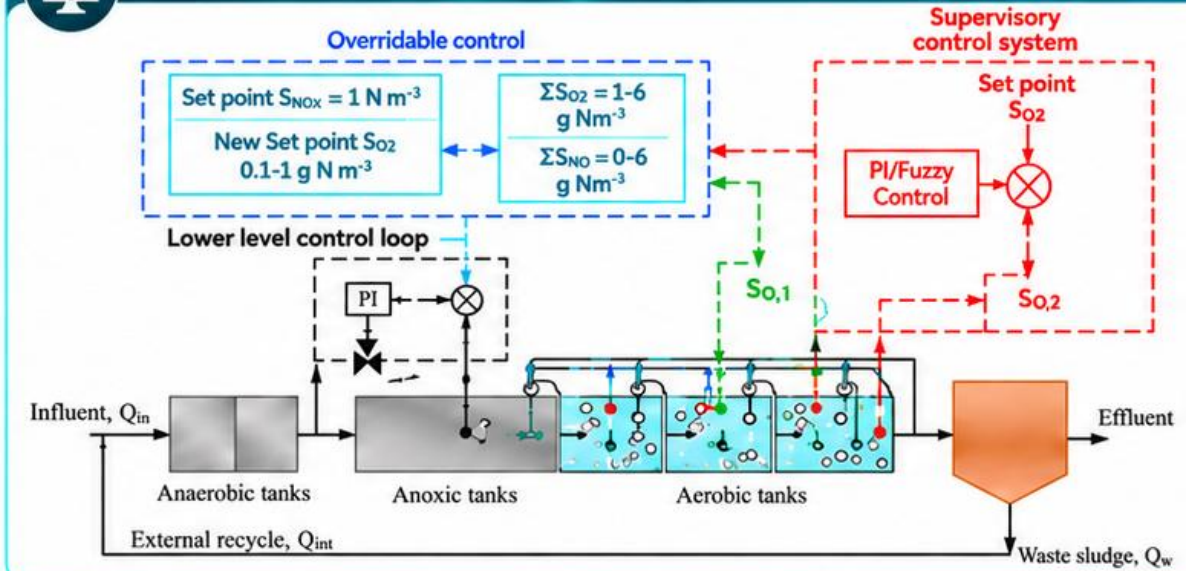


Focus Areas | Advanced materials design and simulation | Additive manufacturing of functional composites | Structure-property relationship | Sustainable and high performance materials | Industry-relevant applications

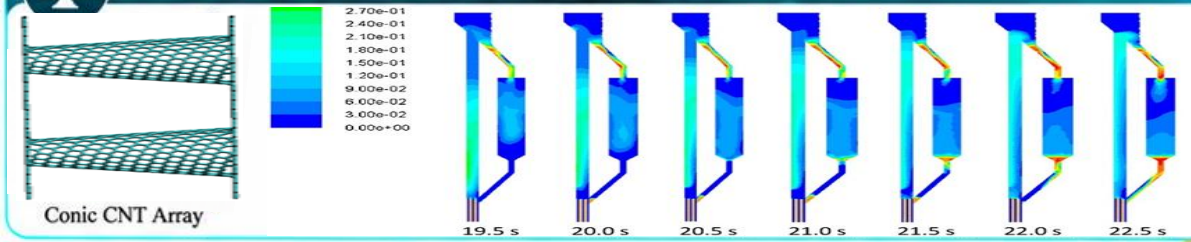
PROCESS SYSTEMS AND CONTROL ENGINEERING

- Development of Control Strategies for Enhanced Nutrient Removal in Biological Wastewater Treatment Plants (WWTP)
- Identification and control strategies to improve the performance of PEM fuel cell
- Step by step methodology of designing a liquid–solid circulating fluidized bed using CFD approach
- Process scheduling
- Molecular dynamic simulations
  - Self-Assembly and Drug Delivery using Biomaterials
  - Water Desalination using Carbon Nanotubes

Hierarchical control structure for biological wastewater treatment plant



CFD simulation of liquid–solid circulating fluidized bed



Focus Areas | Process control and optimization | Sustainable wastewater treatment technologies | Advanced reactor design and simulation | Energy and environmental processes | Industry-relevant applications

Department of Chemical Engineering

RESEARCH FACILITIES & EQUIPMENT

01 HYPHENATED TGA-IR-GC-MS



Advanced thermal analysis coupled with IR spectroscopy and GC-MS for comprehensive material characterization

02 CONTINUOUS FLOW REACTOR



Continuous flow synthesis and reaction optimization for safer, efficient and scalable processes

03 OPTICAL MICROSCOPE



High resolution imaging for microstructural analysis and morphological characterization of materials

04 GAS CHROMATOGRAPH



Separation, identification and quantification of volatile and semi-volatile compounds with high precision

05 HIGH PRESSURE REACTOR



High pressure reaction system for studying kinetics, catalysis and process development

06 GLOVE BOX



Inert atmosphere workstation for handling air-sensitive materials under controlled conditions

Key Features

- Advanced analytical and synthesis facilities
- Support for catalytic, materials and process research
- Enabling cutting-edge research and innovation
- Accessible for collaborative academic and industry projects

RESEARCH FACILITIES & EQUIPMENT

01 ADVANCED FLOW REACTOR



Continuous processing and flow chemistry applications

02 FLUIDIZED BED BIO-REACTOR



Bioprocess engineering and reaction studies

03 MICROWAVE REACTOR



Process intensification and rapid synthesis

04 CASCADE CONTROL TRAINER



Process control and instrumentation training

05 TAPE CASTING MACHINE



Advanced materials and membrane fabrication

06 MUFFLE FURNACE & RHEOMETER



Muffle Furnace
1700 °C

Rheometer
Rheological Characterization

RESEARCH INFRASTRUCTURE AREAS

Process Engineering | Flow Chemistry | Catalysis | Bioprocessing | Advanced Materials

RESEARCH FACILITIES & EQUIPMENT

01 FUEL CELL TEST STATION



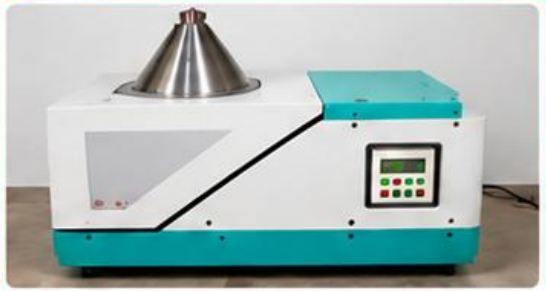
Electrochemical Performance Evaluation

02 SPOUT-FLUID BED



Gas–Solid Contacting and Reaction Studies

03 PLANETARY BALL MILL



High Energy Milling & Nanomaterial Synthesis

FEATURE FACILITY

CIRCULATING FLUIDIZED BED



Hydrodynamics & Reaction Studies

04 TOC ANALYZER



Total Organic Carbon Analysis

05 HPLC



Separation, Identification & Quantification

06 PARTICLE SIZE ANALYZER



Particle Size Measurement

07 THERMAL CONDUCTIVITY ANALYZER



Thermal Property Measurement

RESEARCH INFRASTRUCTURE AREAS

- Process Engineering
- Catalysis & Reaction Engineering
- Environmental & Bioprocessing
- Materials Science & Nanotechnology

RESEARCH FACILITIES & EQUIPMENT

01 4-PILLAR HYDRAULIC COMPRESSION MOULDING PRESS



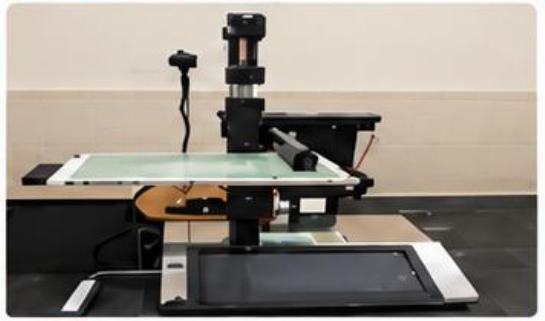
Precision Composite Material Moulding

02 THERMAL EROSION APPARATUS (OXYACETYLENE TEST)



Ablative Performance Evaluation under Intense Heat

03 ENGINE SR (STANDARD RESOLUTION)



Industrial-grade Additive Manufacturing

04 FORM 3+ (STEREOLITHOGRAPHY 3D PRINTER)



High-Accuracy Prototyping

05 DIGITAL LIGHT PROCESSING 3D PRINTER



Rapid Resin-based Fabrication

06 UV-O2 CURING MACHINE



Surface Curing and Material Conditioning

FEATURE FACILITY

BGD 852 Bench UV Light Accelerated Aging Chamber



Accelerated Weathering and Product Life-Cycle Studies

RESEARCH INFRASTRUCTURE AREAS

- Process Engineering
- Catalysis & Reaction Engineering
- Environmental & Bioprocessing
- Materials Science & Nanotechnology

Department of Chemical Engineering

CENTRE OF EXCELLENCE ON BATTERIES



ADVANCED BATTERY RESEARCH | STATE-OF-THE-ART EQUIPMENT | INNOVATION & TESTING | SUSTAINABLE ENERGY SOLUTIONS

01 4 PORT GLOVE BOX



Inert atmosphere workstation for electrode and cell fabrication

02 METROHM M-204 WORKSTATION, 4 CHANNEL



Electrochemical performance evaluation (4-channel)

03 VACUUM OVEN



Drying and thermal treatment of electrode materials and components

04 ELECTROSPINNING APPARATUS



Nanofiber synthesis for battery separator and electrode materials

05 CALENDARING MACHINE



Electrode thickness control and densification

06 ELECTRODE CUTTER & COIN CELL CRIMPER



Electrode cutting and coin cell assembly

07 NEWARE BTS BATTERY CYCLER, 8 CHANNEL



Battery performance testing and lifecycle evaluation

RESEARCH INFRASTRUCTURE AREAS

Battery Research | Advanced Manufacturing | Materials Characterization | Electrochemical Testing | Sustainable Energy Storage

COMPUTATIONAL MODELING & SIMULATION LABORATORY

Advanced Software for Process Design, Simulation, Optimization & Data Analysis



01 PROCESS SIMULATION

- aspentech Aspen Plus
- aspentech Aspen HYSYS
- gPROMS gPROMS

02 MODELING & OPTIMIZATION

- MATLAB
- Simulink
- GAMS GAMS

03 DESIGN & STATISTICS

- DESIGN EXPERT Design-Expert
- STAT-EASE Stat-Ease (Doe Tools)
- DOE & RSM Tools

04 CFD & MULTIPHYSICS

- ANSYS ANSYS
- COMSOL COMSOL Multiphysics
- MATLAB CFD Toolbox

05 CONTROL & AUTOMATION

- Simulink
- LabVIEW
- Control System Design Tools

06 DATA ANALYSIS & PROGRAMMING

- MATLAB
- Asim Sim Infosystems Tools
- Excel & Python (Analytics)

APPLICATIONS

Process Design & Simulation | Process Optimization | CFD & Multiphysics | Process Control & Automation | Dynamic Simulation | Data Analytics & Visualization | Digital Twin & AI Integration

01 ACADEMIC EXCELLENCE





Interactive learning environment

Strong academic engagement

02 CHES & IICHE STUDENT CHAPTERS



Active student chapters and professional engagement

Platform for leadership, networking and growth

03 ASPEN PLUS WORKSHOP



Hands-on training with industry-relevant software

Interaction With Professor Fanxing Li North Carolina State University



Inspiring Discussions

Global Exposure

Knowledge Exchange

TECHNOZION 2025









Showcasing innovation and talent

04 PLACEMENT TALKS







Industry interactions and placement opportunities

Collaborative Learning — Together We Grow

Knowledge Sharing — Learn • Share • Inspire

Community Bonding — Stronger Together

Leadership Development — Lead • Inspire • Excel

Career Guidance — Plan • Prepare • Succeed

Global Exposure — Think Global • Act Local

5. CULTURE | Key Highlights

Department of Chemical Engineering

01 ASCENT CONFERENCE'25



Platform for scientific exchange and knowledge dissemination

02 INCEEE CONFERENCE'25



International platform for research discussions and collaborations

03 ALUMNI MEET WITH 2000 BATCH



Strengthening alumni network and lifelong connections

04 INDUSTRIAL VISIT



Exposure to industry practices and real-world applications

05 STUDENT ACTIVITIES & PRESENTATIONS



Nurturing leadership and communication skills

06 A NIGHT TO REMEMBER



Celebrating talent, creativity and togetherness

07 CELEBRATING TOGETHERNESS



Building a vibrant and inclusive community

08 FRESHERS



Welcoming new talent and new beginnings

Collaborative Learning — Together We Grow

Knowledge Sharing — Learn • Share • Inspire

Community Bonding — Stronger Together

Leadership Development — Lead • Inspire • Excel

Career Guidance — Plan • Prepare • Succeed

Global Exposure — Think Global • Act Local

Nurturing Talent, Building Values, Creating Impact

ACADEMIC & INDUSTRY COLLABORATIONS

Global Partnerships for Research, Innovation & Knowledge Exchange

01 INDIA

ACADEMIC INSTITUTIONS

- Institute of Chemical Technology (ICT), Mumbai
- IISER Pune
- IIT Hyderabad
- IIT Ropar
- National Chemical Laboratory (NCL), Pune
- ARCI, Hyderabad
- Centre for Materials for Electronics Technology (C-MET)
- IGM, Hyderabad

INDUSTRY PARTNERS

- HBL Power Systems Ltd.
- Corning Technologies India Pvt. Ltd.
- Prime Testlab, Warangal
- K-Pack Systems Ltd., Bangalore
- Neuland Laboratories
- Mankind Pharma
- Tata Motors
- Tatva Chintan Pharma Chem Ltd.

02 INTERNATIONAL COLLABORATIONS

- University of Saskatchewan, Canada
- Biolabmate Composite Inc., Canada
- Chalmers University, Sweden
- Technical University of Denmark (DTU), Denmark
- Newcastle University, UK
- Manchester Metropolitan University, UK
- Instituto Superior Técnico, Portugal
- University of Melbourne, Australia
- South Ural State University, Russia



ACADEMIC INSTITUTES	INDUSTRY PARTNERS	COUNTRIES	COLLABORATIONS
8+	8+	6+	20+

RESEARCH COLLABORATION | INNOVATION | TECHNOLOGY DEVELOPMENT | STUDENT EXCHANGE | INDUSTRIAL CONSULTANCY

DISTINGUISHED ALUMNI NETWORK

Global Impact through Leadership, Innovation & Service

01 ACADEMIA

Dr. K. Krishnaiah	Retd. Professor, IIT Madras
Prof. P. S. V. Nataraj	Professor, IIT Bombay
Dr. P. G. Rao	Former President, **IIChE** Former Director RRL, Jorhat, Vice Chancellor, University of Science & Technology, Meghalaya
Dr. Prateek K. Jha	Professor, IIT Roorkee
Dr. Kaushal Rege	Professor, Arizona State Univ., USA
Dr. Harish Vashisht	Professor, Univ. of New Hampshire, USA
Dr. Suresh Santanam	Dir., Industrial Assessment Centre, Syracuse University, USA
Dr. Prem Bikkina	Oklahoma State University, USA
Dr. Vikas Mahto	Professor, IIT (ISM) Dhanbad
Dr. Aditya Kumar	Professor, IIT (ISM) Dhanbad
Dr. ZVP Murthy	NIT Surat
Dr. G. Giri Babu	NIT Jalandhar
Dr. B. Anji Reddy	NIT Jalandhar
Dr. Anchal Sareen	Assistant Professor, University of Michigan, USA

02 INDUSTRY & LEADERSHIP

Mr. Sammi Reddy, IFS	Formerly Chief Conservator of Forests, A.P.
Mr. Venkat Changavalli	Former Advisory to Govt. of UP, Former CEO, EMRI(108)
Mr. C.G. Sethuram (Gold Medalist)	CEO of Thirumalai Chemicals Ltd.
Mr. K. Krishna Mohan Raju	Former CEO, Sneha Diagnostics,
Mr. K. V. Siva Rao	Vice-President, Emerson.
Mr. N. Sridhar Rao	IPS, IG Police, Andhra Pradesh,
Ms. Sarala Bhaskaran	Vice President, Colgate Palmolive
Mr. Sunil Reddy	Managing Director, Saraca Laboratories.
Mr. Gaurav Sharma	CEO, SAAS Labs
Mr. Madhav Malladi	Vice President, Reliance Industries.
Dr. R.L. Umashankar	Former MD, Lakshman Chemicals Davangere Pvt. Ltd.
Mr. S. M. Shetty	Founder & CEO, SM Dyechem Ltd.
Dr. R. Vijay	Director, ARCI Hyderabad

ACADEMIC LEADERS 500+ | **INDUSTRY LEADERS 600+**

ACADEMIA | INDUSTRY LEADERSHIP | GLOBAL NETWORK | PUBLIC SERVICE | ENTERPRENEURSHIP

Thank You

LinkedIn

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WhatsApp Channel

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Department Website

https://www.nitw.ac.in/chem

Connecting Research, Innovation & Industry