



DEPARTMENT OF CHEMICAL ENGINEERING

BITS PILANI HYDERABAD CAMPUS



About the Department



The department of Chemical Engineering started right at the inception of the BITS-Pilani, Hyderabad campus and has been offering B.E(Hons) in Chemical Engineering. The students can complete their programme in eight semesters wherein the last semester may be spent for either of the two alternatives, namely Practice School or Thesis. The programme is intended to give a penetrating professional experience and an opportunity to acquire further competence either in one's own discipline as well as in interdisciplinary areas. The department already has a fully fledged PhD program and will be starting a Masters program shortly.

WELCOME MESSAGE FROM THE HOD

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Welcome to the Department of Chemical Engineering, BITS Pilani Hyderabad Campus. Our Chemical Engineering department though running into only the 5th year of its establishment, is rapidly growing with state of the art laboratory infrastructure with all experimental and computational facilities to promote academic excellence and research. The department currently has seven young and dynamic faculty members from diverse research areas like Reaction Engineering, Electrochemical Engineering, Biochemical Engineering, Material Science, Polymer science etc on board with projects and consultancies worth nearly 80 lakhs this year. We are in the process of recruiting few more to add to our strength. We are currently offering B.E (Hons.) Chemical Engineering Programme with an intake of 40 students and are planning to start Higher degree programme in the near future. The department boasts of 100% placement of our first batch (2008 admits) and the department congratulates all of them who have made the department proud and we wish that this trend continues in future with the students getting placed by best of the recruiters. We shall ensure that the students passing out from our department are well trained in both technical and professional aspects with ethical values ready to take up any challenges so that they shall be the most sought after by the best of the recruiters.



Dr. Balaji Krishanmurthy

WHY BITS?



- Transparent and Stringent Student Intake Process
- Highly experienced and qualified faculties, postdoctorates from the world's renowned universities, equipped with specialized skills with recognition world over
- World class curriculum, constantly updated to reflect the latest in technology and research
- State-of-the-art infrastructure with spacious classrooms, well-furnished lecture theatres and library, and network infrastructure
- Scope for research for under-graduates with top-notch laboratory facilities
- Extensive and expanded University-Industry Linkages Network with renowned companies, successful managers and notable scientists
- Positive feedback from our past recruiters

FACULTY INDEX



Our faculty have extensive experience in teaching as well as industry and research. Our strength is a reflection of their skills, innovation and drive.



Dr. Balaji Krishnamurthy
HOD



Dr. I. Sreedhar
Assistant Professor



Dr. Purnima
Assistant Professor



Dr. Ramesh Babu
Assistant Professor



Dr. Srikanta Dinda,
Assistant Professor



Dr. Karthik Chetan
Assistant Professor



Dr. Asma Ahmed
Assistant Professor

Dr. Balaji Krishnamurthy

Head of the Department



B.Tech : CECRI, Karaikudi
Ph.D : Univ. of South Carolina,
Columbia, USA.

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Research Interests

Energy Engineering, Batteries and Fuel
Cells

Electrochemistry and Electrochemical
Engineering, Mathematical modeling of
electrochemical systems.

Reaction Engineering

Selected Publications

- Effect of ionomer content on performance of Direct Methanol Fuel cells, Balaji Krishnamurthy, S.Deepalochani and K.S.Dhathatreyan, Fuel cells, Volume 8, Issue 6, Pages 404-409.
- Effect of PTFE content on performance of Direct Methanol fuel cells, Balaji Krishnamurthy and S.Deepalochani, International Journal of Hydrogen Energy, 34(2009) 446-452.
- An Experimental analysis of Platinum Utilization in Direct Methanol fuel cells, Balaji Krishnamurthy and S.Deepalochani, Journal of Applied Electrochemistry, Vol 39, Issue 7, 1003, (2009).

Dr. I. Sreedhar

Assistant Professor



B.Tech : NIT Warangal (Formerly REC)

M.Tech : IIT Delhi

Ph. D : Bits Pilani

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pilani.ac.in

Research Interests:

Reaction Engineering, Heterogeneous
Catalysis, Process Development
Computational Fluid Dynamics
Nanotechnology

Selected Publications/ Patents

- K.S.Reddy, I.Sreedhar, K.V.Raghavan, "Kinetic studies on vapor phase pyridine synthesis and catalyst regeneration studies," *The Can. J. Chem. Eng.*, 89 (4) 2011.
- I. Sreedhar, K. S. Reddy, M. Ramakrishna, S. J. Kulkarni and K. V. Raghavan, "Studies on *para*-selectivity and yield enhancement in zeolite catalyzed toluene nitration.", *The Can. J. Chem. Eng.*, 86(2) 2008, 219-227.
- K. S. Reddy, I. Sreedhar and K. V. Raghavan, "Behaviour of deactivating HZSM-5 with varying Al³⁺ content in vapor phase aminocyclization," *Catalysis Letters*, 125 (2008) 110-115.
- I. Sreedhar, K. S. Reddy and K. V. Raghavan, "Studies on physico-chemical changes of zeolites in mononitration of toluene.", *Kinetics and Catalysis.*, 50(1) 2009, 131-137.

Dr. D. Purnima

Assistant Professor



B. Tech :Osmania University
M. Tech:Osmania University,
Ph. D. : IIT Delhi

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Research Interests:-

Polymer Blends, Polymer composites
and Polymer Rheology

Selected Publications

- “Interfacial Adhesion through Maleic Anhydride Grafting on EPDM in PP/EPDM blend”*, D.Purnima, S.N.Maiti and A.K.Gupta , Journal of Applied Polymer Science,2006,102,5528.
- Compatibilization Effect of MAH-g-LDPE on LDPE/Nylon 6 Blend A.K.Gupta, **D.Purnima** and Rahul Sachdeva in International Seminar on Advances in Polymer Technology organized in Cochin University of Science & Technology, Cochin, Kerala, India
- Mechanical Properties of Talc Filled Polypropylene :Effect of PP-g-MAH as Coupling Agent, D. Purnima, S.N. Maiti and A .K. Gupta , in International Conference on Advances in Polymer Blends ,Composites , IPNS and Gels: Macro to Nano Scales at School of Chemical Sciences, Mahatma Gandhi University, Kerala , INDIA.

Dr. Ramesh Babu

Assistant Professor



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B. Tech : CBIT, Hyderabad
M.S : University of Applied Sciences,
Reutlingen, Germany
Ph.D : University of Natural Resources
and Applied Life Sciences
(BOKU), Vienna, Austria

Contact:-

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Email :- adusumalli_2000@yahoo.com

Research Interests:-

Cellulose Fibre Reinforced Composites
Bio Based Materials
Nano Composites

Selected Publications

- R.B. Adusumalli, Keckes J, Martinschitz K, Boesecke P, T.Roeder, H.Weber, H.Sixta, W. Gindl. Comparison of molecular orientation and mechanical properties of lyocell fibre tow and staple fibres. **Cellulose** 2009: 16(5): 765-772.
- R.B. Adusumalli, W. Mook, R. Passas, P. Schwaller, J. Michler. Nanoindentation of Single Pulp fibre Cell walls. **Journal of Materials Science** 2010: 45(10):2558 – 2563.
- R.B. Adusumalli, T.Roeder, H.Weber, H.Sixta, W. Gindl. Evaluation of experimental parameters in the microbond test with regard to lyocell fibres. **Journal of Reinforced Plastics and Composites** 2010:29(15):2356-2367.

Dr. Srikanta Dinda

Assistant Professor



B.Sc Chemistry, Vidyasagar University
B.Tech : Calcutta University
M.Tech : Calcutta University
Ph.D : IIT Kharagpur

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Research Interests

Reaction Engineering ,Petroleum Refining & Refining Catalyst Chemical Process Development ,Separation Technology ,Development of Synthetic Resin, Oil Epoxidation

Selected Publications

- **S. Dinda**, Development of Solid Adsorbent for Carbon Dioxide Capture from Flue Gas, *journal of Separation and Purification Technology*, **2013**,109 64-71.
- S.V.S.S. Vamsi Krishna, E. Vaishnavi, S. Sushma, R. Sunil Kumar, I. Sreedhar, P. Sankar Ganesh, **S. Dinda**, R.B. Adusumalli, *Treatment and Disposal of Municipal Solid Waste in Third world Countries: A Critical Review, international journal of environment & biodiversity, NeBIO*, 2012, 3(5).
- S. Dinda, V. V. Goud, A. V. Patwardhan, and N. C. Pradhan, *Selective epoxidation of natural triglycerides using acidic ion exchange resin as catalyst. Asia Pacific Journal of Chemical Engineering*, 2011, 6 870–878.

Dr. Karthik Chetan V.

Assistant professor



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B.E : University Of Mysore
M.S : University Of Utah
PhD: McMaster University

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Research Interests

Biomaterials (Product development and characterization).
Nanoscience for encapsulation and composite applications.
Investigation of processes such as, protein denaturation, liquid-liquid phase separation and glass formation and corresponding secondary relaxation processes.
Materials Characterization (dielectrics, specific heat spectroscopy, dynamic mechanical spectroscopy, thermal conductivity and electron microscopy).

Selected Publications

Physicochemical Properties of Soy Protein: Effects of Subunit Composition.

Guangyan Qi, Karthik Venkateshan, Xiaoqun Mo, Lu Zhang, and Xiuzhi Susan Sun, J. Agric. Food Chem., 59, 18, 9958-9964 (2011).

Mechanical and Thermal Properties, Morphology, and Relaxation Characteristics of Poly (lactic acid) and Soy Flour/Wood Flour Blends.

Li, Y., Venkateshan, K. and Sun, X. S., Polymer International, 59, 8, 1099 (2010).

Book Chapter: Thermodynamic and microscopy studies of urea-soy protein composites. Venkateshan, K and Sun, X. S., ACS Symposium Series: Green Polymer Chemistry: Biocatalysis and Biomaterials, 1043, Chapter. 5, 59-70 (2010).

Dielectric relaxation and elasticity during polymerization. Venkateshan, K. and Johari, G. P., The Journal of Chemical Physics, 125, 014907 (2006).

Dr. Asma Ahmed

Assistant Professor



B.Tech : CBIT, Hyderabad

PhD : Oklahoma State University

Contact:-

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Research Interests:-

- Production of biofuels and other value-added products from biomass waste
- Cell Culture proces optimization for Biopharmaceutical production

Selected Publications

- Ahmed, A., B. G. Cateni, R.L. Huhnke, R.S. Lewis (2006). "Effects of Biomass-generated Producer Gas Constituents on Cell-growth, Product Distribution and Hydrogenase Activity of Clostridium carboxidivorans P7T." Biomass and Bioenergy 30(7): 665-672.
- Ahmed, A. and Lewis, R.S.(2007) "Fermentation of Biomass-generated Synthesis Gas: Effects of Nitric Oxide", Biotechnology and Bioengineering 97(5): 1080-1086.
- Lewis, R.S., Frankman, A., Tanner, R.S., Ahmed, A., and Huhnke, R.L. (2008) " Ethanol via Biomass generated Syngas", International Sugar Journal 110 (1311)

Patents and Research and Consultancy Projects



1) Sponsored Project

Addressing ruthenium crossover in Direct Methanol fuel cells

Dr. Balaji Krishnamurthy (ABG grant)

2. Development of Synthetic resin, DST, Dr. Srikanth Dinda.

2) Patents

a) Chewing Gum Elastomers from Soy Protein Fractions (US Patent Filed, 2012 Application No. 13420751). Dr. Karthik Chetan

b) Process and Composition of a New Catalyst/Additive for Reducing Fuel Gas Yield in Fluid Catalytic Cracking (FCC) Process. **S. Dinda**, P. K. Chinthala, A. Gohel, A. Yadav, S. Mandal, G. Ravichandran and A. K. Das, *Indian Patent, Application No: 1955/MUM/2011*

c) A Process for Hydrothermally Stable and Attrition resistant ZSM-5 additive for Propylene Maximization. G. Ravichandran, P. K. Chinthala, T. Doshi, A. Gohel, A. Arusu, S. Mandal, A. K. Das, **S. Dinda** and A. Parekh, *Indian Patent Application No: 2078/MUM/2011*

Patents and Research and Consultancy Projects



- FCC catalyst additive and a method for its preparation. G. Ravichandran, P. K. Chinthala, T. Doshi, A. Gohel, A. Arusu, S. Mandal, A. K. Das, **S. Dinda** and A. Parekh, US patent, Pat. No: US 20130023710, 2013, .
- Process and Composition of a Catalyst/Additive for Reducing Fuel Gas Yield in Fluid Catalytic Cracking (FCC) Process. **S. Dinda**, P. K. Chinthala, A. Gohel, A. Yadav, S. Mandal, G. Ravichandran and A. K. Das, **Pat. No: WO 2013005225, 2013.**
- FCC catalyst additive and a method for its preparation. G. Ravichandran, P. K. Chinthala, T. Doshi, A. Gohel, A. Arusu, S. Mandal, A. K. Das, **S. Dinda** and A. Parekh, **Pat. No: WO 2013011517, 2013.**
- Process and composition of a new catalyst/additive for reducing fuel gas yield in fluid catalytic cracking process. G. Ravichandran, P. K. Chinthala, T. Doshi, A. Gohel, A. Arusu, S. Mandal, A. K. Das, **S. Dinda** and A. Parekh, Indian Patent, Pat. No: IN20130111, 2013,



Method for obtaining a glycoprotein composition, Indian Provisional Application number 333/CHE/2012, Jan 2012 , Asma Ahmed, Rekha Hariharan, Sama Naresh Babu, Biologics Development Center, Dr. Reddy's Laboratories Ltd.

Method for obtaining a glycoprotein composition with increased afucosylation content, Indian Provisional Application number 335/CHE/2012, Jan 2012, Asma Ahmed, Indraneel Dasari, Mohit Naresh, Biologics Development Center, Dr. Reddy's Laboratories Ltd.

PROGRAM DETAILS & INFRASTRUCTURE

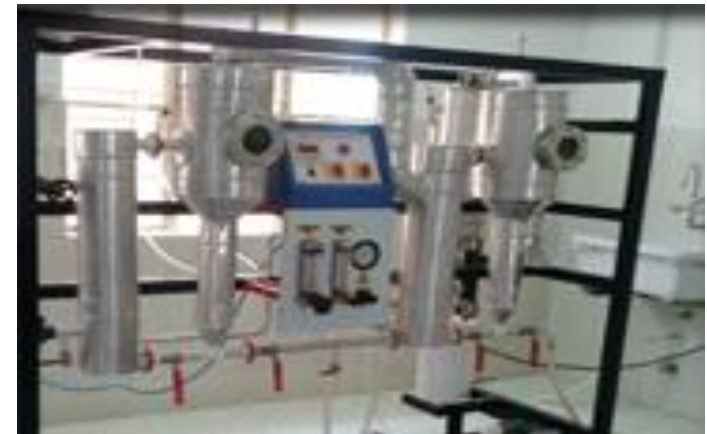


We have a highly competitive program, with the latest of developments in the world included and supported with state-of-the-art lab facilities to provide hands-on experience along with the theoretical knowledge from classrooms.

Labs include:

- Measurement Techniques Lab
- Chemical Reactions Engineering lab
- Advanced Separations Lab
- Advanced Process Control Lab
- Transport Phenomena Lab
- Selected Chemical Operations Lab
- Environmental Engineering Lab
- Central Analytical Lab

PROGRAM DETAILS & INFRASTRUCTURE



PROGRAM DETAILS & INFRASTRUCTURE



B.E (Hons.) Chemical Engineering

- Thermodynamics
- Transport Phenomena
- Chemical Process Calculations
- Engineering Chemistry
- Chemical Engg Thermodynamics
- Mass Transfer Operations
- Heat Transfer Operations
- Selected Chemical Engg Operations
- Kinetics and Reactor Design
- Chemical Process Technology
- Process Design Decisions
- Process Control
- Environmental Pollution Control
- Biochemical Engineering
- Material Sciences
- Process Equipment Design
- Process Plant Safety
- Computer Aided Process Plant Design
- Petroleum Refining and Petrochemicals
- Corrosion Engineering
- Refrigeration and Air Conditioning
- Advanced Process Control

UNIVERSITY-INDUSTRY LINKAGES



- Practice School Program
 - Summer Internship Programs
 - Guest lectures and Workshops
 - National Conferences
 - Collaborations and Research Funding
 - Industrial Visits
- DuPont
 - Dow Chemicals International
 - GE
 - Unilever
 - HAL
 - ABB Industries
 - Aditya Birla Group
 - Hetro Drugs
 - AstraZeneca

PAST RECRUITERS (2012-2013)



Shell, India

Dr. Reddy's Lab

Chola Risk

Leighton and Wellspun

Unilever

WaterHealth

Polmon

Pokarna Group

Zuari Fertilizers

Perkin Elmer



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