

ANNUAL REPORT 2018 (1st July 2017 to 30th June 2018)

DEPARTMENT OF CHEMICAL ENGINEERING

Section 1

Please also provide a brief write-up highlighting the major achievements of the Department/school during the period under review (100 to 200 words)

The Department of Chemical Engineering was sanctioned 02 sponsored project (worth 69.04 lacs) by DST and 01 sponsored project (worth 26.0 lacs) by CSIR.

The department of Chemical Engineering has been accredited by ABET up to 2022.

The faculty of the department has published 50 research papers in SCI Journals. Number of ongoing Ph.D. students are 19, majority of them are getting fellowships from sponsored projects (DST, NRB, CSIR, DAE-BRNS), 3 are getting from Government fellowship programs. Four Ph.D. students are getting TA ships from the University.

The placement of the undergraduate students has been very good and the students securing CGPA 6 and above have been placed in companies like Reliance, UOP, ACC, MU Sigma Business Solution, TCS, Infosys, IBM (India), Jindal Steel Works, Simon India, Ranbaxy Laboratories, Flour Daniel, IOL Chemicals and Pharmaceuticals Ltd.

1. Academic Programs

B.E. Chemical Engineering
M.Tech. Chemical Engineering
Ph.D. Chemical Engineering

2. Thrust areas of research

Adsorption, Bioprocessing, Catalysis, Photocatalysis, Electro-coagulation, Anti-cancer activity, Computational fluid dynamics, CO₂ capture and sequestration, Polymers, Polymer nanocomposites, Biodegradable polymers, Divided wall and reactive distillations, FCC modeling and simulation, Heat Transfer and Heat pipes, Industrial pollution abatement, Membrane separations, Molecular modeling, Nanofluids, Residence time distribution studies in industrial systems.

3. Brief description of ongoing research activities (with pictures of key experimental setups or equipment)

At present, the department is pursuing research in the following areas.

- i. *Carbon Capture and Sequestration (CCS)*: Research activities in this area include polymer production using carbon dioxide, development of adsorbent(s) for CO₂ adsorption, bio-sequestration of CO₂ using algae & cyanobacteria.
- ii. *Heat transfer and heat transfer enhancement*: Use of nanofluids in heat transfer applications, experimental and numerical studies on heat transfer from semicircular cylinders, heat pipes.

- iii. *Polymers and polymer nanocomposites*: Synthesis of biodegradable polymers and their nanocomposites; Studies on STF - nanoclay based composites for personal armour systems, Shear thickening fluids, Nanocomposites adsorbents, Fibre reinforced composites with nano fillers.
- iv. *Modeling and simulation*: FCC, Reactive distillation, Heat Transfer, Divided wall and extractive distillations, CFD, molecular modeling and simulation, RTD models for industrial systems
- v. *Reaction Kinetics & Catalysis*: Transalkylation of alkyl aromatics over modified zeolite catalyst, hydrogen generation from hydrides, catalytic oxidation of furfural to furoic acid, kinetic studies of advanced oxidation processes (AOPs) for wastewater treatment.
- vi. *Separation processes*: Application of natural adsorbents and preparation of ceramic membranes for wastewater treatment.
- vii. *Application of radioactive materials*: Study of hydrodynamics and RTD using radio-tracers, Radiation grafting of polymers to improve biodegradability.
- viii. The department has collaboration with industries by way of sponsored projects to study the hydrodynamics and RTD of Industrial systems using radio-tracers.

4. *Activities round the year (2017-18)*

- The department has been accredited by ABET up to 2022.
- Modernization of UG labs has been completed.
- Aspen Engineering V10 License has been procured for UG lab.
- Interaction with industries (Setia Paper Mills, Muktsar; IOLCP, Barnala; Trident, Barnala) and research institutions (BARC, Mumbai) through collaborative research projects.

5. *New Plans and Projects*

- A number of research proposals are submitted and to be submitted to different funding agencies like CSIR, DST, DRDO, BRNS etc. to strengthen ongoing research in the department.
- Setting up of radio-tracer application laboratory is planned.
- Recently, three projects on radio-tracer application for RTD measurements in industrial processes have been sanctioned by DAE-BRNS. The procurement of facilities related to these is planned.
- Strengthening of industry-institute interaction through collaborative projects.

6. *Major acquisitions during the year and new laboratory development*

7. *Departmental Achievements (Pl provide numbers only in this section – details to be provided in subsequent sections)*

- *Papers published in SCI Journals*: 50
- *Papers published in Non SCI Journals*: 4
- *Papers published in conferences*: 14
- *Sponsored Research Projects New: Number of Projects and Amount (in Rs Lac)*: 03 project, 95.04 Lac

- *Sponsored Research Projects Ongoing: Number of Projects and Amount (in Rs Lac):* 6 projects, 186 Lac
- *Consultancy Projects Number of Projects and Amount (in Rs Lac):* 1 project, 0.3 Lac
- *Seminar/Conference/Workshop organized:* Nil
- *Doctoral Degree Awarded:* 4
- *Visits abroad by faculty members:* 2
- *Awards and Honors:* 4

PLEASE NOTE THAT WE NEED A MINIMUM OF 4 PICTURES OF RESEARCH SETUPS OR INFRASTRUCTURE ACQUIRED OR KEY EVENTS ORGANIZED. THE PICS SHOULD BE SENT AS A SEPARATE WORD FILE

Section-2: Details

1. List of faculty

Distinguished Professor

S.No	Name	Qualification & Specialization
	NIL	

Senior Professor

S.No	Name	Qualification & Specialization
	NIL	

Professor

S. No	Name	Qualification & Specialization
1.	Dr. D.Gangacharyulu	Ph.D. – Heat Power
2.	Dr. Rajeev Mehta	Ph.D. - Polymers and Polymer Nanocomposites
3.	Dr. Haripada Bhunia	Ph.D. - Polymers, Pollution Prevention, Adsorption
4.	Dr. Raj Kumar Gupta	Ph.D. -Modeling & Simulation, Process Design

Associate Professor

S. No	Name	Qualification & Specialization
1.	Dr. Sanghamitra Barman	Ph.D. -Reaction Engineering and Catalysis, Mass Transfer, Petroleum Refining
2.	Dr. Vikas Kumar Sangal	Ph.D., Modeling & Simulation, Industrial Pollution Abatement
3.	Dr. Sanjeev Ahuja	Ph.D. -Modelling & Simulation, Reaction Engg., and Polymers

S. No	Name	Qualification & Specialization
4.	Dr. Jai Prakash Kushwaha	Ph.D. -Environmental Engineering; Separation Processes
5.	Dr. Avinash Chandra	Ph.D. -Computational Fluid Dynamics; Industrial Scale RTD Analysis, Non-Newtonian Fluid Flow & Heat Transfer; Radiotracer Applications; Bioprocess & Natural Products
6.	Dr. Sudhir Kumar Singh	Ph.D. - Thermodynamics, Molecular Modeling, Properties of Fluids at Nanoscale
7.	Dr. Raj Kumar Arya	Ph.D., Chemical Engineering

Assistant Professor

S.No	Name	Qualification & Specialization
1.	Dr. Neetu Singh	Ph.D.- Separation Processes, Heat Transfer, Modelling and simulation
2.	Mr. Parminder Singh	M.Tech-Heat Transfer, Flow hydrodynamics, Nanofluids
3.	Mr. Rakesh Kumar Gupta	M.Tech.- Pollution abatement, CFD and Heat transfer
4.	Dr. Alok Garg	Ph.D. -Waste Water Treatment, Photocatalysis, Pollution Abatement
5.	Dr. Vijaya Kumar Bulasara	Ph.D., Membrane separation, Adsorption, Reaction engineering

Lecturers (Ad-hoc)

S.No	Name	Qualification & Specialization
	NIL	

2. List of research publications in SCI/Impact Factor journals

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
1.	Laplace Transform Treatment for Chemical Engineering Systems: Whether to Use 0^- or 0^+ ?	Chem. Eng. Tech., 41, 875-882, 2018	Sanjeev Ahuja; Raj Kumar Arya	2.051

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
2.	Effect of crosslinked polymer content on drying of binary polymer—solvent coatings	Progress in Organic Coatings, 114, 78-89, 2018	Aman Pathania, Jyoti Sharma, Raj Kumar Arya, Sanjeev Ahuja	2.858
3.	Development of chemically activated N-enriched carbon adsorbents from urea-formaldehyde resin for CO ₂ adsorption: Kinetics, isotherm, and thermodynamics	Journal of Environmental Management , 218, 579-592, 2018	Deepak Tiwari, Haripada Bhunia, Pramod K Bajpai	4.010
4.	Progress in residence time distribution studies using radiotracer in the chemical industry- a review	Chemical Engineering Communication, 205 , 739-758 , 2018	Meenakshi Sheoran, Avinash Chandra, Haripada Bhunia, Pramod Bajpai, Harish Pant	1.08
5.	CO ₂ adsorption on oxygen enriched nanostructured carbons-derived from silica templated resorcinol-formaldehyde	Journal of Industrial and Engineering Chemistry, 60, 321-332, 2018	Deepak Tiwari, Haripada Bhunia, Pramod K Bajpai	4.421
6.	Development of porous carbons from urea formaldehyde resin for carbondioxide adsorption	Journal of the Indian Chemical Society, dedicated to SATEM-2017, 95, 247-252, 2018	Deepak Tiwari, Haripada Bhunia, Pramod K Bajpai	0.145
7.	Effect of nanoclay and bolt preloads on the strength of bolted joints in glass epoxy nanocomposites	Journal of the Brazilian Society of Mechanical Sciences and Engineering, 40, 184, 220, 2018	Kulwinder Singh, J. S. Saini H. Bhunia	1.235
8.	Evaluation of Biodegradability of Potato Peel Powder	Journal of Polymers and the	Vatsala Sugumaran, Haripada Bhunia and Anudeep K. Narula1	1.877

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
	BasedPolyolefin Biocomposites	Environment, 26, 2049-2060, 2018		
9.	Competitive adsorption isotherm modelling of heterocyclic nitrogenous compounds, pyridine and quinoline, onto granular activated carbon and bagasse fly ash	Chemical Papers 2018, 72/3, 617-628	D. Rameshraj, V. C. Srivastava, J. P. Kushwaha, I. D. Mall	0.963
10.	Morphology, Rheology and Biodegradation of Oxo-degradable Polypropylene/Poly (lactic acid) blends	Journal of Polymer Engineering, 38, 239-249, 2018	Dev K. Mandal, Haripada Bhunia, Pramod K. Bajpai, Chandrasekhar V. Chaudhari, Kumar A. Dubey and LalitVarshney	0.631
11.	Biodegradation of pro-oxidant filled polypropylene films and evaluation of the ecotoxicological impact	Journal of Polymers and the Environment, 26, 1061-1071, 2018	Dev K. Mandal, Haripada Bhunia, Pramod K. Bajpai, Anil Kumar, Gaurav Madhu and Golok B. Nando	1.877
12.	To Study the Contribution of Different Geometric Parameters on the Failure Load for Multi Holes Pin Joints Prepared from Glass/Epoxy Nanoclay Laminates	Journal of Composite Materials, 52, 629-644, 2018	M Singh, JS Saini, H Bhunia	1.494
13.	CO ₂ adsorption on oxygen enriched porous carbon monoliths: kinetics, isotherm and thermodynamic studies	Journal of Industrial and Engineering Chemistry, 60, 321-332, 2018	Jasminder Singh, Haripada Bhunia, Soumen Basu	4.421

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
14.	Adsorption of CO ₂ on KOH activated, N-enriched carbon derived from urea formaldehyde resin: kinetics, isotherm and thermodynamic studies	Applied Surface Science, 439, 760-77, 2018	Deepak Tiwari, Haripada Bhunia, Pramod K Bajpai	3.387
15.	Biodegradation of pro-oxidaant filled polypropylene films and evaluation of the ecotoxicological impact	Journal of Polymers and Environment, 26, 1061-1071, 2018	Dev K. Mandal, Haripada Bhunia, Pramod K. Bajpai, Anil Kumar, Gaurav Madhu, Golok B. Nando	1.969
16.	Synthesis and characterization of low-cost ceramic membranes from fly ash and kaolin for humic acid separation	Korean Journal of Chemical Engineering, 35, 725-733, 2018	M. Rawat, V.K. Bulasara	2.007
17.	Electrocatalytic oxidative treatment of real textile wastewater in continuous reactor: degradation pathway and disposability study	Journal of Hazardous Materials, 346, 242-252, 2018	Parminder Kaur, Jai P Kushwaha, Vikas K Sangal,	6.065
18.	Removal of emerging contaminants daidzein and coumestrol from water by nanozeolite beta modified with tetrasubstituted ammonium cation	Journal of Hazardous Materials, 344, 417-430, 2018	N. Goyal, V.K. Bulasara, S. Barman	6.065
19.	Performance and mechanism of dye extraction from aqueous solution using synthesized	Colloids and Surfaces A: Physicochemical and Engineering Aspects, 539, 85-91, 2018	Paramjit Kaur, Nikhil Rajani, Piyush Kumawat, Neetu Singh, Jai P Kushwaha	2.714

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
	deep eutectic solvents			
20.	Electro-Oxidation of Ofloxacin antibiotic by Dimensionally stable Ti/RuO ₂ anode: Evaluation and Mechanistic approach	Chemosphere, 193, 685-694, 2018	Ravneet Kaur, Jai Prakash Kushwaha Neetu Singh	4.208
21.	Feasibility of using combined TiO ₂ photocatalysis and RBC process for the treatment of real pharmaceutical wastewater	Journal of Photochemistry and Photobiology A: Chemistry, 353, 263-270, 2018	S. Talwar, V. K. Sangal, A. Verma.	2.495
22.	Critical temperature estimation of bulk and confined atomic fluid using vapour-liquid interfacial free energy	Molecular Simulation , 44, 156-163, 2018	Sudhir K Singh	1.678
23.	Effect of Crosslinked Polymer Content on Drying of Binary Polymer—Solvent Coatings	Progress in Organic Coatings, 114, 78-89, 2018	Aman Pathania, Jyoti Sharma, Raj Kumar Arya, Sanjeev Ahuja	2.858
24.	Seawater ageing of glass fiber reinforced epoxy nanocomposites based on silylated clays	Polymer Degradation and Stability, 147,103-114, 2018	Bikramjit Sharma, Rahul Chhibber, Rajeev Mehta	3.386
25.	Synthesis of highly stable and efficient Ag loaded GO/TiO ₂ nanotube electrodes for the photoelectrocatalytic degradation of pentachlorophenol	Journal of Electroanalytical Chemistry, 814, 118-126, 2018	H. Rajput V. K. Sangal A Dhir.	2.822

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
26.	GO mediated TiO ₂ nanotube electrode for the photoelectrocatalytic degradation of pentachlorophenol,	Journal of The Electrochemical Society, 165, 16-26, 2018	H. Rajput, A Dhir. V. K. Sangal	3.259
27.	Parametric optimization for the treatment of human urine metabolite, creatinine using electro-oxidation	Journal of Electroanalytical Chemistry, 809, 136-146, 2018	J Singla A. Verma V. K. Sangal	2.822
28.	Effect of addition of different nano-clays on the fumed silica- polyethylene glycol-based shear-thickening fluids	Material Research Express, 5, 014001-014008, 2018	Mansi Singh, Rajeev Mehta, Sanjeev K Verma, Ipsita Biswas	1.068
29.	Radiotracer investigation on the measurement of residence time distribution in an ethyl acetate reactor system with a large recycle ratio	Applied Radiation and Isotopes, 130, 245-251, 2017	Arghya Datta, Raj Kumar Gupta, Sunil Goswami, Vijay Kumar Sharma, Haripada Bhunia, Damandeep Singh, Harish Jagat Pant	2.051
30.	Heat transfer and pressure drop performance of water-based Al ₂ O ₃ nanofluid in a flat vertical tube of a radiator	Journal of Chemical Engineering Communications, 205, 257-268, 2017	Gurpreet Singh, Gangacharyulu Dasaroju, Vijaya Kumar Bulasara	1.297
31.	Performance and Evaluation of Electro-oxidation treatment of Human Urine metabolite Uric Acid using Response Surface Methodology	Journal of The Electrochemical Society, 164, 312-320, 2017	J. Singla, A. Verma, V. K. Sangal	2.822
32.	Residual Solvent Study In Polymer – Polymer – Solvent	Progress in Organic Coatings, 113, 200-206, 2017	Jyoti Sharma Raj Kumar Arya Sanjeev Ahuja	2.858

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
	Coatings: Poly(styrene) – Poly(methyl methacrylate) – Tetrahydrofuran Coatings		Chitresh Kumar Bhargava	
33.	Addition of nanoclay and compatibilized EPDM rubber for improved impact strength of epoxy glass fiber composites	Composites Part A: Applied Science and Manufacturing, 103, 263-271, 2017	Karanbir Singh, Tarun Nanda, Rajeev Mehta	4.075
34.	Radiotracer Investigation of a Pulp and Paper Mill Effluent Treatment Plant	Nukleonika, 62, 289-294, 2017	M. Sarkar, V. K., Sangal, V. K. Sharma, H. Bhunia, P.K. Bajpai, A. Kumar, A. K. Naithani, H. J. Pant	0.82
35.	Electrocatalytic oxidative treatment of real textile wastewater in continuous reactor: degradation pathway and disposability study	Journal of Hazardous Materials, 346, 242-252, 2017	P. Kaur, J. P. Kushwaha V. K. Sangal,	6.065
36.	Effect of bio-polymer and salt concentrations on the drag reduction and shear degradation properties of turbulent flow of water in a pipe	Journal of Carbohydrate Polymers, 181, 1017-1025, 2017	Kamaljit Sokhal, Gangacharyulu Dasaroju and Vijaya Kumar Bulasara	5.13
37.	Evaluation and disposability study of actual textile wastewater treatment by electro-oxidation method using Ti/RuO ₂ anode.	Process Safety and Environmental Protection, 111, 13-22, 2017	P. Kaur, J. P. Kushwaha, V. K. Sangal.	0.58

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
38.	Productivity correlation and economic analysis of floating wick basin type vertical multiple effect diffusion solar still with waste heat recovery	Journal of Desalination, 423, 95-103, 2017	Arvind K. Kaushal, Madhup Mittal and Dasaroju Gangacharyulu	3.756
39.	Effect of hygrothermal aging on GFRP composites in marine environment	Steel and Composite Structures, 25, 93-104, 2017	Mohit Garg Shruti Sharma Sandeep Sharma Rajeev Mehta	3.198
40.	Epoxy based oxygen enriched porous carbons for CO ₂ capture	Applied Surface Science, 414, 380-389, 2017	Deepak Tiwari Haripada Bhunia Pramod K. Bajpai	3.387
41.	Application of Taguchi method in the optimization of geometric parameters for double pin joint configurations made from glass-epoxy nanoclay laminates	Journal of Composite Materials, 51, 2689-2706, 2017	M Singh JS Saini H Bhunia	1.275
42.	Radiotracer investigation and modeling of an activated sludge system in a pulp and paper industry	Applied Radiation and Isotopes, 130, 270-275, 2017	M. Sarkar, V. K. Sangal, V. K. Sharma, J. Samantray, H. Bhunia, P.K. Bajpai, A. Kumar, A. K. Naithani, H. J. Pant	1.128
43.	An experimental study of floating wick basin type vertical multiple effect diffusion solar still with waste heat recovery	The International Journal of Desalination, 414, 35-45, 2017	Arvind K. Kaushal Madhup Mittal Dasaroju Gangacharyulu	3.756
44.	Melamine-formaldehyde derived porous carbons for	Journal of Environmental Management, 197, 415-427, 2017	Deepak Tewari Chitrakshi Goel Haripada Bhunia Pramod K. Bajpai	4.049

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors	Impact Factor
	adsorption of CO ₂ capture			
45.	Thermal degradation kinetics and estimation of lifetime of radiation grafted polypropylene films	Radiation Physics and Chemistry, 136, 8-1, 2017	Dev K. Mandal, Haripada Bhunia, Pramod K. Bajpai, Vinod K. Bhalla	1.380
46.	Compatibilization of polypropylene fibers in epoxy based GFRP/clay nanocomposites for improved impact strength	Composites Part A: Applied Science and Manufacturing, 98, 207-217, 2017	Karanbir Singh Tarun Nanda Rajeev Mehta	3.719
47.	Efficient removal of bisphenol S from aqueous solution by synthesized nano-zeolite secony mobil-5	Microporous and Mesoporous Materials 259, 184-194, 2018	Nitin Goyal, Sanghamitra Barman, V. K. Bulasara	3.66
48.	Influence of copper oxide nanoparticles on the thermophysical properties and performance of flat tube of vehicle cooling system	Journal of Vacuum, 157, 268-276, 2018	Gurpreet Singh Sokhal, Gangacharyulu Dasaroju, Vijaya Kumar Bulasara	2.067
49.	Experimental investigations on the cooling performance of microchannels using alumina nanofluids with different base fluids	Journal of Enhanced Heat Transfer, 25, 283-291, 2018	Harkirat Kaur, Gangacharyulu Dasaroju and Mani Kanwar Singh	0.562
50.	Synthesis, characterization and anticancer activities of metal ions Fe and Cu doped and co-doped TiO ₂	New Journal of Chemistry, 41, 9931-9937, 2017	Alok Garg, Ashutosh Singh, Vikas Sangal, Pramod Kumar Bajapi, Neha Garg	3.277

3. List of research publications in Non-SCI/Non-Impact journals

S. No.	Title of the paper	Name of the Journal with volume, page nos., year	Name of the authors
1.	Experimental investigation of the effect of heat transfer and pressure drop on performance of a flat tube by using water-based Al ₂ O ₃ nanofluids	International Journal of Energy for a Clean Environment, Vol 19 (1-2), , pp 1-17, 2018	Gurpreet Singh, Gangacharyulu Dasaroju, and Vijaya Kumar Bulasara
2.	A Review of Drag Reduction in a Turbulent Flow using Polymers	International Journal of Engineering and Technical Research V6(07), pp 520-523, 2017	B. Satya Prashant, Sumeet Sharma, D. Gangacharyulu and Kamaljit Singh
3.	An Experimental Study on Thermophysical Properties of Multiwalled Carbon Nanotubes, International Journal of Engineering	IJE TRANSACTIONS B: Applications Vol. 30, No. 1223-1230, 2017	Mohit Thakur, D. Gangacharyulu & Gurpreet Singh
4.	Effect of temperature and multiwalled carbon nanotubes concentration on thermophysical properties of water base nanofluid	International Journal of Mechanical and Production Engineering Research and Development 2249-8001 Vol. 7, pp. 151-160, 2017	Mohit Thakur, D. Gangacharyulu & Gurpreet Singh

4. Publication of papers in conference proceedings and other publications

S. No.	Title of the paper	Name of the conference with venue, date and year, page nos.	Name of the authors
1.	Pilot scale wheat straw pulping in continuous pulp digester	CHEMCON-2017, Haldia Institute of Tech, DEC 27- DEC 30, 2017	Avinash Chandra Navjot Kaur Arvind Kumar Gautam
2.	The computation of melting temperature for tetrahedral liquids	CHEMCON-2017, Haldia Institute of Tech, DEC 27- DEC 30, 2017	Arvind Kumar Gautam Avinash Chandra
3.	Effect of guar gum and hydroxyethyl cellulose on skin friction drag of turbulent flow in a pipe	24 th National and 2 nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC 2017), BITS Pilani Hyderabad , DEC 27-DEC 30, 2017	Gangacharyulu, B.Satya Prashant, Kamaljit Singh, Sumeet Sharma
4.	Heat transfer and fluid flow study of CuO-W/EG (50:50) nanofluids through aluminum microchannels	24 th National and 2 nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC 2017), BITS Pilani Hyderabad , DEC 27-DEC 30, 2017	Gangacharyulu, Harkirat Sandhu
5.	Enhancement of heat transfer performance of flat vertical tube using copper oxide/water nanofluids,	24 th National and 2 nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC 2017), BITS Pilani Hyderabad , DEC 27-DEC 30, 2017	Gangacharyulu, Gurpreet Singh Sokhal, Vijaya Bulasara
6.	Shear-Thickening Fluids and their Applications-A Rheological Study of Nanoclay/Fumed Silica/PEG System	25 th POLYCHAR 2017 World Forum ON Advanced Materials, Putra World Trade Centre, Kuala Lumpur, Malaysia-Invited lecture, OCT 9- OCT 13, 2017	Mansi Singh, Rajeev Mehta
7.	Shear-Thickening Fluids with Nanoparticles and their Application	4 th International Conference on Nanoscience and Nanotechnology (ICONN2017) at SRM University, SRM University, AUG 9-AUG 11, 2017.	Rajeev Mehta
8.	CO ₂ Adsorption On Porous Carbon Monoliths Synthesized Using Nano casting Technique	70 th Annual Session of Indian Institute of Chemical Engineers, CHEMCON 2017	Jasminder Singh, Soumen Basu, and Haripada Bhunia
9.	Radiation grafted polypropylene films and its biodegradability	International Conference on Advanced Applications of Radiation Technology (NICSTAR-2018), Mumbai, India, 5th - 7th March, 2018, page no. 25	Dev K.Mandal, Haripada Bhunia, Pramod K.Bajpai, C.V.Chaudhari,

S. No.	Title of the paper	Name of the conference with venue, date and year, page nos.	Name of the authors
	and ecotoxicological impact		K.A.Dubey and L. Varshney
10.	Non-isothermal bulk radiation polymerization of MMA/grapheme Composites	International Conference on Advanced Applications of Radiation Technology (NICSTAR-2018), Mumbai, India, 5th - 7th March, 2018, page no. 33	Sunidhi Gupta, Ravneet Kaur Kailey, H. Bhunia, R. K. Mondal, K. A. Dubey, Y. K. Bhardwaj and L. Varshney
11.	Creep recovery in radiation crosslinked acrylate copolymers networks with variable compressibility	International Conference on Advanced Applications of Radiation Technology (NICSTAR-2018), Mumbai, India, 5th - 7th March, 2018, page no. 34	Ravneet Kaur Kailey, Sunidhi Gupta, H. Bhunia, R. K. Mondal, K. A. Dubey, Y. K. Bhardwaj and L. Varshney
12.	Radiotracer Application for RTD Investigation of Pulp Digester	International Conference on Advanced Applications of Radiation Technology (NICSTAR-2018), Mumbai, India, 5th - 7th March, 2018, page no. 94	Meenakshi Sheoran, Avinash Chandra, Haripada Bhunia, Harish J. Pant
13.	Comparison of Aeration Tanks in Activated Sludge Process with varying Aeration System	International Conference on Advanced Applications of Radiation Technology (NICSTAR-2018), Mumbai, India, 5th - 7th March, 2018, page no. 114	Metali Sarkar, Vikas K. Sangal, Haripada Bhunia, Pramod K. Bajpai, Vijay K. Sharma, Harish J. Pant and Anil K. Naithani
14.	Residence Time Distribution Studies on Plant Scale Recycle Reactor	International Conference on Advanced Applications of Radiation Technology (NICSTAR-2018), Mumbai, India, 5th - 7th March, 2018, page no. 119	Arghya Datta, Raj Kumar Gupta, Sunil Goswami, Vijay Kumar Sharma, Haripada Bhunia, Damandeep Singh, Harish Jagat Pant

5. List of ongoing sponsored projects

S.No.	Name of the Project	Year of Funding sanction	Funding Agency	Project Cost (Lacs)	Principal Investigator
1.	Polymer Fiber Addition to Multi-Scale Glass Fiber Reinforced Clay Epoxy Nanocomposites for improved Impact Strength	2018	DST-SERB New Delhi	28.92	Dr Rajeev Mehta Dr Tarun Nanda
2.	Electroreduction of carbon dioxide to ethanol using nanostructured copper based electrocatalyst	2018	DST-SERB New Delhi	40.12	Dr. Haripada Bhunia Dr Neetu Singh
3.	Poly lactide Polypropylene Blends Preparation, characterization, degradability and eco toxicity studies	2017	CSIR New Delhi	26.0	Dr. Haripada Bhunia Dr. S. K. Ahuja
4.	Drying of Polymer – Polymer – Solvent Coatings: Experimental and Simulation Study	2017	DST-SERB New Delhi	41.21	Dr. Raj Kumar Arya
5.	Measurement of Circulation time and Optimization of Mixing Process for Ethyl Acetate Reactor Using Radiotracer Technique	2015	DAE-BRNS, Mumbai	25.24	Dr. Raj Kumar Gupta Dr. Haripada Bhunia
6.	Study of Hydrodynamics and RTD of Effluent Treatment Process(Biological) Using Radiotracer Technique	2015	DAE-BRNS, Mumbai	24.51	Dr. Vikas Kumar Sangal Dr. Haripada Bhunia

6. List of Completed sponsored project

S.No	Name of the Project	Funding Agency	Project Cost (Lacs)	Principal Investigator
1	Synthesis and Characterization of High Capacity Adsorbents For CO ₂ capture	DST	25.34	Dr. Haripada Bhunia/ Dr. Pramod Kumar Bajpai
2	Studies on STF – Nanoclay Based Composites For Personal Armour Systems	ARMREB, DRDO	32	Dr. Rajeev Mehta
3	Development of Nano-Eco Toxic Polyolefins With Controlled Environmental Degradation by Using High Energy Radiation and Pro-Oxidants	DAE- BRNS, Mumbai	27.89	Dr. Haripada Bhunia/ Dr. Pramod Kumar Bajpai
4	Investigation of Hydrodynamics and RTD of Pulp Digester Using Radiotracer Technique	DAE- BRNS, Mumbai	26.97	Dr. Avinash Chandra/Dr. Haripada Bhunia,Dr. Pramod Kumar Bajpai

7. Consultancy/Testing assignments completed/ongoing

S. No.	Name of the Project	Name of the Faculty members involved	Amount Generated
1	Verification of pollution load and material balance calculation for change in product mix	Dr. R. K. Gupta	0.3 lacs

8. List of faculty members who have delivered invited lectures/talks etc. at various levels

S. No.	Name of the faculty member	Title of the expert talk/lecture	Forum with date and venue
	NIL		

9. List of completed Ph. D. Thesis

S. No.	Title of the Thesis	Name of the Supervisor(s)
1	Heat transfer and fluid flow nanofluids in micro-channels	Dr. D Gangacharyulu
2	Studies on catalytic hydrogen generation from sodium borohydrate	Dr. D. Gangacharyulu Dr. P. K. Bajpai
3	Preparation and characterization of composite membranes for ultrafiltration applications	Dr. R.K. Gupta Dr. V.K. Bulasara
4	Studies on removal of emerging endocrine disruptor compounds from aqueous phase by synthesized nanozeolites	Dr. S. Barman Dr. V.K. Bulasara

10. List of equipment procured

S.No	Name of the equipment	Make	Name of the laboratory	Date of Purchase (dd/mm/yyyy)	Amount (Rs Lacs)
1.	Sieve Shaker	Eie Instrument	Fluid Particle Mechanics	02/11/2017	69,030/-
2.	Fume Hood	Yorco Sales	Chemical Reaction Engineering (C.R.E), Mass Transfer, Research Lab	08/11/2017	19,74,000/-
3.	CO ₂ Gas Analyzer	Spectrum	Research Lab	16/08/2017	5,89,764/-
4.	Fluidization And Fluid Heat Transfer Setup	P.A. Hilton	Fluid Particle Mechanics	09/11/2017	13,25,072/-
5.	Plug Flow Reactor	Edibon	Chemical Reaction Engineering	20/10/2017	12,08,698/-
6.	VLE Setup	Quality Engineers	Mass Transfer	24/10/2017	58,760/-
7.	Gas Absorption Column	Pifnat	Mass Transfer	24/12/2017	18,27,790/-
8.	Drag Coefficient	Armfield	Fluid Particle Mechanics	14/02/2018	10,43,716/-
9.	Batch Reactor	Armfield	Chemical Reaction Engineering.	09/03/2018	15,67,877/-
10	Water Cooling Tower	Armfield	Mass Transfer	09/03/2018	14,60,462/-
11	Tray Drier	Armfield	Mass Transfer	09/03/2018	13,45,607/-
12	Spray Drier	Armfield	Mass Transfer	09/03/2018	21,06,068/-
13	Centrifugal Pump	Armfield	Fluid Particle Mechanics	09/03/2018	8,15,786/-

11. Computing facilities in the Department

S. No.	Details of the Hardware/Software	Name of the Laboratory
1.	Aspen Engineering V10 Licence	Process Modeling And Simulation
2.	Dell Optiplex 7450 Aio	Process Modeling And Simulation

12. List of Awards and recognitions

S. No.	Name of the faculty	Award / Fellowship/ Nominations	University/ Organization	Month and Year
1.	Dr. D. Gangacharyulu	The best technical paper award, International Journal of Mechanical and Production Engineering Research and Development	Trans Stellar Journal Publications Research Consultancy	Aug, 2017
2.	Dr. Rajeev Mehta	“Best Innovative Young Researcher”	4th International Conference on Nanoscience and Nanotechnology (ICONN2017)	Aug, 2017
3.	Dr. Rajeev Mehta	Member of selection committee for faculty recruitment	NIT Jalandhar, for TEQIP institutions	Dec, 2017
4.	Dr. Rajeev Mehta	Best Research in Polymer Sciences, Technology and Engineering	PlastIndia Foundation (an apex plastics organization, India)	Feb, 2018

