Office of the Dean (Research and Consultancy)

S V National Institute of Technology, Surat

Database of SVNIT Faculty Members: Research Specializations and Expertise

Department of Chemical Engineering			
Sr no	**Name of the faculty member**	**Research Specialization to be displayed on the R&C website.**	**Any specific interesting research problems that the faculty member is working or intends to work upon**
1.	**Dr. Z. V. P. Murthy**	Wastewater Treatment Separation Processes (membrane separations, Adsorption, Electrocoagulation etc.) Nanoscience/Nanotechnology	• Membrane distillation; membrane distillation-crystallization; membrane bioreactor; pervaporation separation
2.	**Dr. P. A. Parikh**	Catalysis in Refining and Petrochemical Processes Fuels Biofuels Decarbonisation Technology, Hydrogen Storage and Transportation, Ammonia as a Fuel, Ammonia Decomposition	• Obtaining important and value-added blending compounds for diesel and gasoline, lower alcohol and olefin oligomerization, olefin homologation • Remediation and sustainable catalyst. • Photocatalytic degradation of wastewater.
3.	**Dr. M.Chakraborty**	Green Chemistry (Ionic Liquid, Microwave synthesis) Separation Processes (Emulsion liquid membrane, Supported liquid membrane etc) Nanomaterials (Synthesis and application)	• Synthesis of biofuels and biofuels additive from lignocellulosic compounds. • Separation of Endocrine disrupting compounds from wastewater using • hollow fibre supported liquid membrane technique • Application of Nanofluid for different applications like drug delivery, heat transfer etc.
4.	**Dr. Mausumi Mukhopadhyay**	Nanomaterials/Nanocomposite Biomass to chemicals Separation/Waste water treatment	• Nanocomposite (SnO 2 , RuO 2 and TiO 2) based electrode for supercapacitor (Energy Storage) · Nanocomposite (SeNPs based) as Reactive oxygen species • (ROS) Sensor (electrochemical). · Nanocomposite (CeO 2 and FeO based) as Desalination • Membrane. · Nanocomposite (TiO 2, CeO 2 and ZnO) based as Antifouling • Membrane. · Nanocomposite (CeO 2 based) as Industrial Coating · Biosynthesis of nanoparticles (using plants and • microorganism resources) metal nanoparticles such as Tin oxide (SnO 2), Cerium oxide (CeO 2), Gold, Silver, Platinum, Palladium, Selenium, Cadmium oxide (CdO), and Zinc Oxide (ZnO) and Iron oxide (FeO) reported for production of valuable chemicals by catalytic conversion and membrane separation. · Remediation and sustainable catalyst. · Photocatalytic degradation of wastewater.

5.	**Dr. Jigisha Kamal Parikh**	Energy & Environment Energy Conservation and Efficiency Upgradation Waste to Energy Process Design & Evaluation Environment Audit Environmanagement System Colloidal Science & Surface Engineering	• Biomass carbohydrates to value added chemicals and fuel components through chemo-catalytic route • Design and development of catalytic system/process for a given molecule • Waste valorization through Integrated biorefinery approach (Lab to Pilot Scale) • Design and development of a pilot plant process including scale up studies • Techno-economic evaluation of various processes and plants • Design of controlled drug delivery system including drug-eluting devices mechanism and drug release kinetics • Encapsulation of typical bioactive components • Process development for selective extraction/separation of bioactive components from natural resources • Application of Process intensified approach towards establishment of a typical process • Agriculture and food processing (Biobased materials and technology development) • Design and evaluation of wastewater treatment strategies
6.	**Dr. Chetan M. Patel**	Nanoparticles production (Wet Nanomilling) Modeling & Simulation of Particulate Systems Particle Technology (Powder/Particle Size, Shape & flow-ability Characterization, Shape analysis using Image processing, Powder compaction)	• Production of nano minerals, nano biomaterials on large scale. • Preparation of Nanostructured materials for Lithium ion batteries and supercapacitor. • Curcumin Nanoparticles / nanogel for drug delivery. • DEM simulation for Pharmaceutical powder filling process.
7.	**Dr. Meghal A. Desai**	Natural Products Extraction Hydrotropic Separation	• Application of Design of Experiments for optimization of various parameters in a Process • Extraction of valuable chemicals like essential oil, phenolic extracts, pectin from various biomass • Use of sonication and microwave radiation for improving the existing process • Apart from above, facilities like microwave and ultrasound enabled vessel, HPLC, GC, etc. can be utilized for solving a problem upon collboration.
8.	**Dr. Arun Kumar Jana**	CFD Based Modelling and Simulation Liquid-liquid and gas-liquid multiphase flows Drag Reduction in Pipeline Transportation Heterogeneous catalysis in Petroleum Refining and Petrochemicals Packed and Expanded Bed Operations	• CFD Based Modelling and Simulation, Liquid-liquid and gas-liquid multiphase flows, Drag Reduction in Pipeline Transportation, Heterogeneous catalysis in Petroleum Refining and Petrochemicals, Packed and Expanded Bed Operations
9.	**Dr. Jignasa V. Gohel**	Advanced thin film Solar cells Nanomaterials/Nanocomposite Nanocatalytic degradation	• New generation photovoltaic solar cells with high efficiency and low cost • Synthesis and characterization of novel nanomaterials and thin films • Investigation on stability, efficiency and degradation studies of hybrid solar cells • Investigation on novel materials for Energy Storage • Ab initio study of photoelectrochemical applications
10.	**Dr. (Mrs.) Alka A. Mungray**	Membrane separation process Membrane bio reactor and wastewater treatment	• Fabrication and testing of membranes • Osmotic microbial fuel cell for water and energy recovery • Development of effective draw agents. • Development and application of hydrogels • Stacking of fuel cells

11.	**Dr. A. K. Mungray**	Wastewater Treatment (biological treatment) sludge treatment aerobic, anaerobic processes	• Testing of water and wastewater samples • Decentralized wastewater treatment • Electricity generation from wastewater by using microbial fuel cells • Water and fertilizer recovery from human urine for commercial buildings
12.	**Dr. Sanjay R. Patel**	Ultrasound Assisted Separations Conventional Separations Polymer Processing	• Ultrasound combined with micro-milli channel assisted Crystallization/precipitation, Microfluidics, Nano medicine, Drug Delivery systems, Process intensification using microreactors, ultrasound, and membrane. • Quality by Design in Pharmaceutics, Optimization of Processes using Design of experiments. • Waste water treatment, Modelling and Simulation
13.	**Dr. V. N. Lad**	Colloidal & Interfacial Engineering Process Intensification & Process Design Rheology of Complex Fluids Microfluidics Thin Film Multiphase Systems Nanotechnology Advanced Materials	• Development of waterproof surfaces • Surface modification of textile • Lab-on-a-Chip devices design and applications for biomedical • requirement • Soft materials and their improved flow properties for food, • pharmaceutical and cosmetic applications • Development of Multifunctional Nanomaterials for selected • applications • Chemical process design for energy efficient and environment- • friendly production • Development of Micro-sensors
14.	**Dr. Smita Gupta**	Membrane separation techniques, Wastewater Treatment, Biochemical Engineering	• Organic-Organic separation by application of liquid membranes in pervaporation • Microbial Enhanced Oil Recovery
15.	**Dr. G. C. Jadeja**	Neoteric Green Extraction Techniques (Sub/Supercritical and Pressurized Fluid Extractions Valuable Chemicals from Renewable Resources (Bio-refinery Concepts)	• Recovery of high value chemicals from Biomass (particularly fruit and vegetable wastes) employing neoteric solvents
16.	**Dr. S.K. Sundar**	Drug delivery systems (Extraction/Encapsulation of bioactive compounds) Microfluidics and Nanotechnology Colloids and Interfaces / Surfactants / Rheology Modelling and Simulation Biochemical Engineering (Fermentation/Enzyme Technology) Energy/Environment	• Development of drug delivery systems for pharma, food and • cosmetic applications. • Pickering emulsions for food applications. • Green synthesis of nanoparticles/nanocomposites. • Wastewater treatment
17.	**Dr. Jogender Singh**	Process Intensification,Heat Transfer and Fluid flow, Microfluidics,Micro-flow ExtractionProcesses, Separation Processes,CFD, Modelling and Simulation, Industrial Safety and Hazards Management	• Microfluidic devices. • Microflow extraction of precious metal from waste streams via process intensification. • Process intensification for enhanced efficiency of the cyclone separator. • Renewable energy technologies. • Process modeling and simulation: Modelling and simulation of the solar pond.
18.	**Dr. Sarita Kalla**	Membrane Separation Process and Membrane Fabrication, Process Modeling and Simulation, Desalination and Waste Water Treatment, Process Optimization, Adsorption	• Membrane Distillation • Membrane fabrication for different membrane separation processes • Membrane Gas Separation • Wastewater treatment • Microbial Fuel Cells • Grey Water Treatment
19.	**Dr. Vineet Kumar Rathore**	Contaminated Groundwater Treatment, Nanotechnology, Electrochemical Processes, Solid Waste Management, LCA and Sustainability Studies	• Synthesis of nanoparticles through various types of processes and their application for the treatment of water contaminated with dyes, heavy metals and other metalloids; Management of waste generated post water treatment process and environmental assessment of the entire process to make it sustainable.