

DEPARTMENT OF CHEMICAL ENGINEERING (DoChE)

SVNIT, Surat

ChED Newsletter (2021-22)

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About Department

Established in 1995, the Department of Chemical Engineering, SVNIT, Surat offers programme leading to Bachelor's, Master's and Ph.D. Degree in Chemical Engineering. Currently, the Department has 19 faculty members with expertise in various domains of chemical engineering. The faculty members are granted several R&D projects from organizations like GUJCOST, DST, DBT, etc. and have high quality research publications and patents. The department has built а comprehensive infrastructure with some top-notch facilities for carrying cutting-edge research. The focus research areas are membrane separation, chemical reaction engineering, catalysis, energy storage, sensor and biosensor, biomass to energy and value-added chemicals, colloids and interfacial engineering, drug delivery systems, liquid membrane, rheology, nanotechnology, modelling of chemical processes, advanced powder technology, biotechnology, computational fluid dynamics, multiphase flow, adsorption, waste water treatment, etc. 55 PhD and 185 M. Tech students are Awarded till date. Currently there are 22(FIR)PhD, 8(PEC)PhD, 2 JRF and 23 M.Tech. candidates enrolled in department of chemical engineering. 11 ongoing sponsored projects are there and 35 sponsored projects, 4 course work development projects and 2 industrial projects have been completed. Paper published in reputed International and National Journals is approximately 762 & 406 papers are presented and/or published in national and international conference till July 2022.



MESSAGE FROM HOD

Chemical Engineering is the discipline which combines the process with energy and environment in a profitable manner. And to make it happen, chemical engineering is unceasingly improving and expanding.

चरन्मार्गान्विजानाति

From the conventional view of chemical plants like petroleum refineries, petrochemicals, fertilizers and so on, to subtle applications like drug delivery, plant-in-chip, microorganism in plant, microfluidic; the discipline has evolved in a sustainable and greener manner. The progression in chemical engineering is in line with the needs of the man-kind as well as the ecosystem so that sustenance can be restored. Moreover, for the attainment of sustainable development goals, chemical engineers can contribute like never before. Department of Chemical Engineering at Sardar Vallabhbhai National Institute of Technology, established in the year 1995, reflects this in the spectrum of curriculum, teaching, lab practices, research and innovation.



The amalgamation of core subjects (for fundamentals) with electives (for deep dive into new terrain); right balance between theory and laboratory sessions and cutting edge research ensure that the graduating students are capable of entering into the domain they wish, be it higher studies or industry. This responsibility is shouldered effectively by the faculty members of the department. Whether its teaching or research, the faculties have excelled in both the fields. Accreditation by NBA for UG and PG; excellent placement records, pursuance of higher study by students are the proofs of academic excellence while publication in high impact journals (indexed in SCI/E), excellent h- and i- indices, good numbers of sponsored research projects (from sponsoring agencies like DST, SERB, GUJCOST, CSIR, etc.), patent filing are outcomes of sincere and dedicated efforts towards research. The Department also offers testing and consultancy services to the industries. The outstanding achievements are because of synergism among the work-force and cordial environment prevailing since the inception of the Department. Recently, the Department was granted a fund of Rs. 1.68 Crore to strengthen the research facilities under FIST-2021 program by DST, Gol, New Delhi.

The Department takes immense pride for the contribution made by the faculty members and students towards betterment of the society, ecosystem and ultimately achieving sustainability.

I invite you to explore the website for more details. Feel free to contact us.

Thank You.



PROF Z. V. P. MURTHY

obtained B.Tech. from REC (now NIT), Warangal; M.Tech. from IIT Kharagpur; and Ph.D. from IIT Delhi. He has over 2 years of industrial experience and over 26 years of teaching/research experience. His research interests are related to separation techniques, membrane separations, nanomaterials, etc. He has published 193 SCI/SCIE journals and reviewed/reviewer to 168 journals. He has supervised 19 Ph.D. thesis, of which 3 got best thesis awards and 4 are going-on. He has also guided 41 M.Tech / M.E. dissertations of which 2 got best/second best dissertation awards.

International Recognition: Listed in the "World ranking of scientist (2%)", published by the research team from Stanford University, USA, October 2020 and October 2021. (The full list of top 2% researchers world-wide can be found at http://shorturl.at/qHIJ4 The subject-wise world-ranking of top 2% researchers from India is available at http://shorturl.at/bdix8)

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PROF PARIMAL A. PARIKH

is DAAD fellowship awardee and former Dean (Research & Consultancy). He has guided 20 Master's and 10 PhD students. He was deputed by MHRD, GoI as visiting professor at AIT, Bangkok and LEAP training programme. His research interests include (nano-) catalysis in refining and petrochemical processes and biomass conversions. He has authored 90 papers. He has been recognised with various national awards and research projects.



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PROF MOUSUMI CHAKRABORTY

is Humboldt fellowship awardee in 2004-05, 2009 and 2017. She has guided 23 M. Tech. dissertations and 12 Ph.D students. She has published 97 papers in international Journals and 2 book chapters. She has completed research projects from various funding agencies including BRNS, DST R&D, AICTE, MHRD R&D. Her research interests include nano-materials, green chemistry, separation processes, etc.

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PROF MAUSUMI MUKHOPADHYAY

is former professor of the department and has 26 years of teaching experience. Her research interests are nanocomposite material for energy, environment and healthcare, advanced separation and water treatment. She has completed 4 (MHRD, IEI, BRNS, DST) sponsored and 2 Industrial Projects. Guided/guiding 10 Ph.D. (9 PhD awarded) and 16 M. Tech under her guidance. Published about 137 research papers (80 Journal) in international journals and conference proceedings. Recognition: Recognition as authors of the top 1% most cited articles (2015-2019) in Industrial & Engineering Chemistry Research: ACS Publications.



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PROF JIGISHA K. PARIKH

a fellow of Royal Society of Chemistry-UK has 30 years of experience in teaching and industries. Deputed as Scientist G at SERB-DST - GoI, New Delhi for 3 years. She has guided/guiding 15 Ph.D. & 23 M.Tech dissertations. Research interest includes Biomass waste valorization through Integrated Biorefinery approach (fuels and value added chemicals through green catalysis), development of sustainable and green technology (New Materials and technology development), deriving bioactive components from plant based materials etc. She has successfully executed various projects funded by GEDA, TIFAC, CSIR, GUJCOST, MHRD, DST-SERB to the tune of Rs. 5.5 Cr. Actively engaged in industrial consultancy in the area of environmental and energy management, process design, process improvement through intensification approach, catalysis etc. She has published/presented 130 research papers in journals, conferences and book chapters at International/National level. Functioned as coordinator - Schedule I Environmental Audit and performed audit for several industries. Outstanding reviewer for many International peer reviewed publications.

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DR. CHETAN M. PATEL

is Associate Professor and formar Head of the Department. He obtained B. E. from SVNIT-Surat (Formerly R.E.C., Surat), M. Tech. from IIT Delhi and Ph.D. from SVNIT-Surat. His main research interests are in field of Particle Technology and Nanomaterials. The specific research areas includes Powder characterization and handling, DEM simulations of particulate processes, production of Nanomaterials by stirred media milling, Nanomaterials preparation for drugs, lithium-ion batteries, supercapacitor and Molecular simulation of nanocomposites. He has completed one research project and one Pedagogy Project of course development. He has guided 7 M. Tech. Students. He has supervised 3 Ph.D. students and currently supervising 2 Ph.D. students. He has published 28 Research papers in peer reviewed International journals (SCI/SCIE).



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DR. MEGHAL A. DESAI

is Associate Professor and head of the department and has 16 years of teaching experience. Currently, he is guiding 6 PhD students and 3 students have completed Ph.D. under his guidance. He has 34 publications in International/national Journals/book chapters to his credit. He works in the area of Process intensified approach in Chemical and Allied Technology, Chemicals derived from biomass (New Materials and technology development and engineering), Application of Neoteric solvents and Waste valorization using greener concepts. In his work, Design of Experiment is effectively used to achieve the optimum conditions. He has received research project grants from CSIR and SERB-DST. He has also completed a Pedagogy project under National Mission Project on Pedagogic Research, MHRD.

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DR. ARUN KUMAR JANA

is Associate Professor in the Department of Chemical Engineering, SVNIT. He joined the Department in 2007 as an Assistant Professor after doing Ph.D. from the Department of Chemical Engineering, IIT Kharagpur. He is currently working in drag reduction in pipeline transportation and heterogeneous catalysis in petrochemicals synthesis. His other research area includes multiphase flows; CFD based modelling and simulations. He has supervised 2 Ph.D. thesis and 2 are ongoing and guided 14 M.Tech. dissertations. He has completed one DST funded research and one pedagogy project. He has published 20 research papers in reputed journals.

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DR. JIGNASA V. GOHEL

is Awarded for Best Ph.D. Thesis and Research-2014 given away by IIChE in Chemical Engineering/Technology for the research work on "Synthesis and applications of nanoparticles" and currently Associate Professor. She has over 20 years of teaching and Research experience. Her research areas are Clean Energy, Materials Science, Nanotechnology, Solar Energy and solarcells, Energy Storage, Thin film, Photo electrochemical applications. She has guided 3 Ph.D. students. She has published 70 International publications in peer reviewed International journals (SCI/SCIE/scoups) and reviewed/reviewer to 20 SCI/SCIE journals. She has completed 4 sponsored Research Projects (DST, SERB, TEQIP and MHRD).



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DR. ALKA A. MUNGRAY

is currently Associate Professor. Her research area is Membrane Separation Process, Membrane development, Wastewater treatment, Forward osmosis (FO), Osmotic microbial fuel cells, Polymer nanocomposite etc. She has 12 years of teaching experience. She has completed 3 sponsored projects (DRDO, MHRD and TEQIP) and one ongoing from ISRO regarding Potable water recovery from human urine recycling for long term Human Space Mission. She has published 52 International research/review publications with Google Scholar h-index 18, and 4 book chapters. She is a reviewer of more than 20 SCI listed journals. She is guiding 5 Ph.D. students and 3 Ph.D. are awarded. She has granted 1 patent on FO membrane preparation in 2020.

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DR. ARVIND KUMAR MUNGRAY

is currently Associate Professor. He has 14 years of teaching experience. He is working on Wastewater treatment, Waste to energy, Microbial fuel cell, Bioelectrochemical systems, Urine to resources, Hybrid systems, Decentralization, Nanomaterials etc. He has 7 research projects to his credit from DRDO, DST, SVNIT, etc. and two ongoing projects from ISRO and SERB-DST. He has published 72+ International publications with h-index of 21 and a reviewer to over 40 international journals. He also has 2 design patents and had filed 1 process patents. He also has international collaboration with Kyonggi University, Republic of Korea and Delft Institute of Water Education, Netherlands. He has also received the Young Engineer's award from IIChE. He is guiding 6 Ph.D. students and 5 Ph.D. are awarded.



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DR. SANJAYKUMAR R. PATEL

is working as an Associate Professor. He has over 15 years of teaching experience. He is working on Microfluidics, Nanomedicines, Drug Delivery systems, Process intensification using microreactors, ultrasound, and membrane. Acoustic and hydrodynamic cavitations, Quality by Design in Pharmaceutics, Optimization of Processes using Design of experiments. Wastewater treatment, Modelling and Simulation. He has 34 International publications and 6 research Projects including SERB-DST sponsored projects with more than 80 lacs to his credit. He has 5 Ph.D. under supervision and 3 Ph.D. have awarded the degree.

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DR. V. N. LAD

is Associate Professor, has more than 19 years of professional experience, and guiding 4 Ph.D. students. His area of research interest includes Colloids, Interfacial Engineering, Microfluidics, Thin Films, Process Intensification, Environmentally Benevolent & Energy Efficient Process Design, Rheology of Complex Fluids, Advanced Materials, Energy Technology and Nanotechnology. His credentials involve 3 research projects including that funded by DST and GUJCOST, more than 20 international papers. He was the recipient of the appreciation Gandhian Young Technological Innovation Award received at the Rashtrapati Bhawan, New Delhi. Appointed as State Coordinator for the state of Gujarat, and for the Union Territory of Dadra and Nagar Haveli for State Specific Plan of AICTE for Technical Education in India.



https://www.svnit.ac.in/web/department/chemical/homepage%20vnl/index%20vnl.html



DR. SMITA GUPTA

is working as an Assistant Professor. She has over 12 years of teaching experience. Here research interests include applications of liquid membranes, wastewater treatment, applications of ionic liquids in various fields like in EOR as surfactants, in wastewater treatment using membrane separation techniques as additives and in recovery of valuable materials as carriers, biochemical engineering, etc. She has published 27 International publications. She has guided 2 PhD and 6 M. Tech students.

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DR. G. C. JADEJA

is an Assistant Professor, has over 8 years of teaching and research experience. His major areas of interest include valorization of biomass using novel extraction techniques and catalytic systems, developing bio lubricants, etc. He has successfully completed a CSIR sponsored research project and is currently handling SERB-DST sponsored project. He is currently guiding 6 Ph.D. students and 1 Ph.D. awarded.



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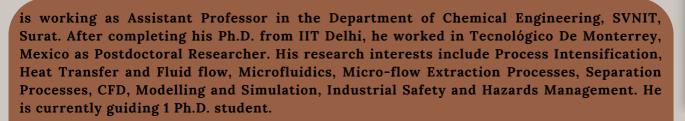


DR. SUNDAR S.K.

is a doctorate from Indian Institute of Technology Bombay and is currently working as an Assistant Professor. His doctoral work resulted in one journal publication, 2 book chapters and one patent. He has over six years of teaching experience after Ph.D (Other institutes & SVNIT). His research interests include drug delivery systems, biopolymers, surfactants & interfaces, microfluidics, nanomaterials, waste to wealth, biochemical engineering, etc.

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DR. JOGENDER SINGH





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DR. SARITA KALLA

is working as an Assistant Professor at the Department of Chemical Engineering, SVNIT, Surat. She graduated as engineer from University of Rajasthan in year 2008. She did Master of Technology from Aligarh Muslim University with honors in year 2015. In 2019, she obtained her PhD degree from MNIT, Jaipur. Her areas of specialization are desalination and wastewater treatment, membrane separation process and membrane fabrication, process modeling and simulation. She has published several papers in journals of International repute as well as in prestigious international conferences. Dr. Kalla has also conferred the prestigious Prof. Shymal Kanti Sanyal Memorial Award for the Best Ph.D. Thesis in the Area of Membranes Research with Significant Commercial Potential awarded by Indian Institute of Chemical Engineers (IIChE).

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DR. VINEET KUMAR RATHORE

is an Assistant Professor, has over 5 years of teaching and research experience (at SVNIT and other institutes). His major areas of interest include development of low-cost water treatment techniques, solid waste treatment, sustainability and LCA studies. He obtained his PhD from IIT Roorkee in 2018 with specialization in the same areas. He is currently supervising 1 part time Ph.D. scholar.



FACULTY ACHIEVEMENTS



- Prof. Z.V.P. Murthy is listed in the "World ranking of scientist (2%)", published by the research team from Stanford University, USA, October 2020 and October 2021. He is granted with 3 design patents.
- Prof. Z.V.P. Murthy became Fellow of Royal Society of Chemistry (FRSC) in March 2022.
- Prof. Jigisha K. Parikh was selected as Fellow under "Professor B. D. Tilak
 Visiting Fellowship Endowment" for the year 2021-22.
- Prof. Jigisha K. Parikh and Dr. Meghal A. Desai, received recognition for contribution towards research in Cleaner production and Clean Technology by Gujarat Cleaner Production Centre, Government of Gujarat during year 2018-2019 & 2019-2020.
- Dr. S. R. Patel and Dr. Meghal A. Desai, received recognition for contribution towards research in Cleaner production and Clean Technology by Gujarat Cleaner Production Centre, Government of Gujarat during year 2021-22.
- Dr. G. C. Jadeja, received recognition for contribution towards research in Cleaner production and Clean Technology by Gujarat Cleaner Production Centre, Government of Gujarat during year 2020-21.

SELECTED PUBLICATIONS



- Amol Vijay Sonawane, Z.V.P. Murthy, Synthesis and characterization of ZIF-8-based PVDF mixed matrix membranes and application to treat pulp and paper industry wastewater using membrane bioreactor. Environmental Science: Water Research and Technology, 8 (2022) 881–896. DOI:10.1039/D2EW00011C (Royal Society of Chemistry, UK).
- Appanu Sushvanth Reddy, Sarita Kalla, Z.V.P. Murthy, "Nano-particles enhanced hydrophobic membranes: High-performance study for dye wastewater treatment using membrane distillation", Journal of Water Process Engineering, Volume 46, 102610, April 2022.
- Ashwin R. Kamble, Chetan M. Patel and Z.V.P. Murthy, A review on the recent advances in mixed matrix membranes for gas separation processes. Renewable and Sustainable Energy Reviews, 145 (2021) 111062. DOI: 10.1016/j.rser.2021.111062 (Elsevier Scientific Publication).
- Chandra Bhushan T. Pal and Girirajsinh C. Jadeja "Optimization and kinetics of polyphenol recovery from raw mango (Mangifera indica L.) peel using a glycerol-sodium acetate deep eutectic solvent system" Biomass Conversion and Biorefinery, (2022) DOI: 10.1007/s13399-022-02550-w
- Gupta, K., Jana, A.K., Chakraborty, M., Parikh, P.A, Treating crude oil storage tank sludge by catalytic process and recovering valuable hydrocarbons, Chemical Papers, 75 (8), (2021) 4285–4296.
- J. M Barad, H. P. Kohli, M. Chakraborty, Adsorption of hexavalent chromium from aqueous stream by maghemite nanoparticles synthesized by the microemulsion method, Energy Nexus, 5, (2022) 100035.
- Jimil K. Johnson, Vineet Kumar Rathore, Sanjaykumar R. Patel, Naved Malek and Parimal A.Parikh, Volumetric and acoustic properties of binary and ternary mixtures of butanol isomers with gasoline surrogate compounds, Journal of chemical and engineering data, 67, (2022) 809–824.
- Ketan Maru, Sarita Kalla, Ritambhara Jangir, "Dye Contaminated Waste Water Treatment through Metal-Organic Frameworks (MOFs) based Materials", New Journal of Chemistry, Vol. 46, 3054-3072, 2022.
- M. S. Bhagat, A. K. Mungray, A. A. Mungray, Comparative investigation of solenoid magnetic field direction on the performance of osmotic microbial fuel cell, Materials Today Chemistry 24, (2022) 100778. (Elsevier Publication) DOI: 10.1016/j.mtchem.2022.100778.

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- M. S. Bhagat, A. K. Mungray, A. A. Mungray, Performance of pilot-scale constructed wetland osmotic microbial fuel cell under different gravel conditions, Environmental Science and Pollution Research, (2022) 1-11.
- M. S. Bhagat, A. K. Mungray, A. A. Mungray, Recent advances in osmotic microbial fuel cell technology: A review, Journal of the Indian Chemical Society, (2022) 100552
- Nikita Gupta and Z.V.P. Murthy, Synthesis and application of ZIF-67 on the performance of polysulfone blend membranes. Materials Today Chemistry, 23, (2022) 100685. DOI: 10.1016/j.mtchem.2021.100685 (Elsevier Scientific Publication)
- Piyush I. Modi, Jigisha K. Parikh, Meghal A. Desai, "Inorganic salt mediation for improved isolation of essential oil from the Cinnamon bark", Journal of Chemical Technology and Metallurgy, 56: 1181-1186, October 2021.
- Piyush I. Modi, Jigisha K. Parikh, Meghal A. Desai, "Intensified approach towards isolation of cinnamon oil using microwave radiation: Parametric, optimization and comparative studies", Industrial Crops and Products, 173, Article 114088, December 2021. (DOI: 10.1016/j.indcrop.2021.114088).
- Preeti L. B. Jain, Sanjaykumar R. Patel, Meghal A. Desai, "Patchouli oil: An overview on extraction method, composition and biological activities", Journal of Essential Oil Research. Accepted (DOI: 10.1080/10412905.2021.1955761).
- Priti V. Ganorkar, G. C. Jadeja, Meghal A. Desai, "Extraction of shikimic acid from water hyacinth (Eichhornia crassipes) using sonication: An approach towards waste valorization", Journal of Environmental Management, 305, Article 114419, March 2022. (DOI: 10.1016/j.jenvman.2021.114419).
- Ramadurgam Aniruddha, Vasa Maureen Shama, Inkollu Sreedhar, Chetan M. Patel, Bimetallic ZIFs based on Ce/Zn and Ce/Co combinations for stable and enhanced carbon capture, Journal of Cleaner Production, 350, (2022), 131478.
- S. Klimonsky, A.Baranchikov, V. N. Lad, Elena Eremina, Alexey Garshev, A.Kuznetsov, F.Jalolov, P. Demidovich, Photonic and plasmonic effects in inverse opal films with Au nanoparticles, Photonics Nanostructures: Fundam. Appl. 43, (2021), 100899, doi:10.1016/j.photonics.2021.100899.
- Saikumar Nair, Jignasa V. Gohel, "Impact of stress testing and passivation strategies on low-cost carbon-based perovskite solar cell under ambient conditions" Optical Materials, 117, July, 111214 (2021).

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- Saikumar Nair, Jignasa V. Gohel, "Introduction of P3HT-based gradient heterojunction layer to improve optoelectronic performance of low-cost carbon-based perovskite solar cell", Optical Materials, Volume 119, September, 111366 (2021).
- Sanjay Krishna, I. Sreedhar, Chetan M. Patel, Molecular Dynamics Study of Thermal Properties of Polyamide Nanocomposites reinforced with Natural Biofillers, Materials Today Chemistry, 23, (2022) 100756.
- Smita Gupta; Nitin Vishwakarma; Ketan Kuperkar; Jogender Singh, Process Intensification in Enhanced Oil Recovery via Surface Active Ionic Liquid-based Multiwalled Carbon Nanotubes' Nanofluid, Journal of King Saud University Engineering Sciences (Elsevier).
- Snehal N. Ghule, Meghal A. Desai, "Intensified extraction of valuable compounds from clove buds using ultrasound assisted hydrotropic extraction", Journal of Applied Research on Medicinal and Aromatic Plants, 25, Article 100325, December 2021. (DOI: 10.1016/j.jarmap.2021.100325).
- Suhas Doke, C. M. Patel, V. N. Lad, Improving Performance of the Synthesis of Silica Nanoparticles by Surfactant-incorporated Wet Attritio Milling, Silicon 14, (2022) 913–922.
- Vegad, G.D., Jana, A.K., Viscosity Reduction of Indian Heavy Crude Oil by Emulsification to O/W Emulsion Using Polysorbate-81, Journal of Surfactants and Detergents, 24 (2), (2021),301-311, DOI: 10.1002/jsde.12470.



Sr. No.	Title (Registration of Design)	Application No.	Patent Status	Inventors
1	Flat Sheet Membrane Module for Wastewater Treatment	341280-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Dr. Sarita Kalla Mr. Amol Sonawane
2	Direct Contact Membrane Type Water Desalination Module	360754-001	Granted	Dr. Z. V. P. Murthy Dr. Sarita Kalla Mr. Amol Sonawane
3	Sanitary Patch	362650-001	Granted	Dr. Pallvita Yadav Dr. Sarita Kalla
4	Vessel for Simultaneous Pretreatment and Separation of Bioactive Components from Plant Material	343361-001	Granted	Dr. M. A. Desai Dr. J. K. Parikh
5	Apparatus of Testing of Antifouling properties of Filtration membranes	347903-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane Mr. Dipesh Kachhadiya
6	Universal Face mask	347918-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
7	UV Reactor for Water Treatment	348075-001	Granted	Dr. M. Mukhpadhyay
8	Agitated Ball Mill 348601-001 Gr		Granted	Dr. C. M. Patel Dr. Z. V. P. Murthy Mr. Amol Sonawane
9	Electrochemical Sensor Apparatus	348930-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane Mr. Vijay Kumar Singh
10	Water Purifier	348690-001	Granted	Dr. A. K. Mungray Dr. A. A. Mungray Mr. Asfak Patel
11	Flat Sheet Membrane Module for Liquid Mixture Separation	351911-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane Mr. Dipesh Kachhadiya



Sr. No.	Title (Registration of Design)	Application No.	Patent Status	Inventors
12	Ultrasonication Induced Filtration Cell for Water Waste water Treatment	352182-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
13	Eletromagnetic Field Induced Flat Sheet Membrane Module for Waste Water Treatment	352180-001	Granted	Dr. Z. V. P. Murthy Dr. C.M. Patel Mr. Amol Sonawane
14	Rotary Ball Cleaning System for Industrial Tanks	352582-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
15	Submerged Type Flat sheet Membrane Filtration Module for Waste Water Treatment	352581-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
16	Microreactor for Nanoparticles Synthesis	353522-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
17	Membrane Bioreactor System for Water and Waste Water Treatment	354237-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
18	Shell and Tube Type Heat Exchanger	355977-001	Granted	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
19	Forward Osmosis Membrane Bioreactor System for Water and Wastewater Treatment	357320-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane
20	Wavy Flow Channel Membrane module for Oil Water Separation	357326-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane
21	Tubular Pervaporative Membrane Module for Liquid Mixture Separation	357327-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane
22	Flat Disc Membrane Module for Gas Mixture Separation	357583-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane



Sr. No.	Title (Registration of Design)	Application No.	Patent Status	Inventors
23	Forward Osmosis Membrane Module for Water and Wastewater Treatment	357493-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane
24	Dynamic Pervaporative Membrane Module for Liquid Mixture Seperation	357581-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane
25	Core Flooding Setup	358005-001	Under Process	Dr. M. Chakraborty Dr. Shilpa Nandwani
26	Stirred Cell for Wastewater Treatment using Emulsion Liquid Membrane	358060-001	Under Process	Dr. M. Chakraborty Dr. Himanshu Kohli
27	Microfluidic Device	359136-001	Under Process	Dr. V. N. Lad Mr. Svapnil Kevat
28	Microfluidic Device	359137-001	Under Process	Dr. V. N. Lad Mr. Svapnil Kevat
29	Film Applicator for Preparation of Flat Sheet Membrane	360649-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane
30	Carbon Dioxide Gas Capture Membrane Module	360573-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane
31	Distillation Set-up for Essential Oil Extraction	363213-001	Under Process	Dr. M. A. Desai Dr. J. K. Parikh Dr. G.C. Jadeja Dr. S. R. Patel
32	Annular Array Shell for Distillation of Essential Oil	363355-001	Granted	Dr. M. A. Desai Dr. J. K. Parikh Dr. G.C. Jadeja Dr. S. R. Patel
33	Water pH Control System	363900-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane
34	Reverse Osmosis Membrane Module Regeneration System	363896-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane



Sr. No.	Title (Registration of Design)	Application No.	Patent Status	Inventors
35	Hollow Fiber Membrane Module Regeneration System	363895-001	Granted	Dr. Z. V. P. Murthy Mr. Amol Sonawane
36	Solar Powered Water Filtration and Cooling System	363887-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane
37	Electro-Fermentation System	363792-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane
38	Ultrasonication Assisted Membrane Bioreactor System for Wastewater Treatment	364672-001	Under Process	Dr. Z. V. P. Murthy Mr. Amol Sonawane
39	Ultrasonication Assisted Agitated Ball Mill	366064-001	Under Process	Dr. Z. V. P. Murthy Dr. C. M. Patel Dr. I. Sreedhar Mr. Amol Sonawane



Sr. No.	Title (Process Patent)	Application No.	Patent Status	Inventors
1	Ultrasonic Enhanced Y- type Microchannel Emulsification System and Drug Envapsulation using Said System.	202121023591	Granted Patent No. 387401	Dr. S. R. Patel Dr. G. C. Jadeja Ms Preena Shrimal
2	Perovskite Solar Cell with Poly (3-Hexylthiphene) based Heterojunction Layer and Method of Fabricating the Same	202121035762	Granted Patent No. 392369	Dr. J. V. Gohel Mr. Sai Kumar Nair
3	Process For Synthesis of Copper Zinc Tin Sulfide CZTS Material as Hole Transport Material	201921041402	Granted Patent No. 397301	Dr. J. V. Gohel Mr. Sidhdhant Patel Mr. Amar Patel
4	PPEA/MAA Active Layer Containing Forward Osmosis Membrane and a Method of Preparing Thereof	201821003182	Granted Patent No. 353731	Dr. A. A. Mungray Mr Pankaj Pardeshi
5	An Integrated Equipment for Crushing and Extraction	201921000563	Under Process	Dr. M. A. Desai Dr. J. K. Parikh Krishna P. Solanki
6	Method of Synthesis of SnO2 Nanocatalyst using Leaf Extract of Delonixregia	202121009497	Under Process	Dr. M. Mukhpadhyay Dr. Nishant Srivastava
7	Method of Chlorella Pyrenoidosa Microalgae Mediated Green Synthesis of Selenium (Se) Nanocatalyst	202121024660	Under Process	Dr. M. Mukhpadhyay Mr. Nilesh Dumore
8	Platinum and Selenium Nanocomposites Coated Fluorine-Doped Tin Oxide (FTO) Electrochemical Sensor for Hydrogen Peroxide Detection	202121031002	Under Process	Dr. M. Mukhpadhyay
9	Method of Photocatalytic Degradation of Drimaren Orange P2R Dye using ZIF-Ag3po4/PVDF Photocatalytic Mixed Matrix Membrane	202121045074	Under Process	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane Mr. Dipesh Kachhadiya
10	Method of Photocatalytic Degradation of Drimaren Orange P2R Dye using h-BN/Ag3PO4/PVDF Photocatalytic Mixed Matrix Membrane	202121051855	Under Process	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane



Sr. No.	Title (Process Patent)	Application No.	Patent Status	Inventors
11	Method of Photocatalytic Degradation of Drimarenorange P2R Dye using MoS2/Ag3PO4/PVDF Photocatalyst	202121052076	Under Process	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane
12	Method for Synthesis and fabrication of MWCNT@ZIF- 8-67/PVDF Nanocomposite Mixed Matrix Membrane for Pervaporative Saltwater Desalination	202121054127	Under Process	Dr. Z. V. P. Murthy Dr. C. M. Patel Mr. Amol Sonawane Mr. Dipesh Kachhadiya
13	Method of Preparation of Curcumin Nanoparticle	202121060112	Under Process	Dr. C. M. Patel Dr. Z. V. P. Murthy Mr. Amol Sonawane Ms. Kanika Meena
14	Process for Vitamin Supplements Size Reduction using Hydrotopic Antisolvent Crystallization	202221011123	Under Process	Dr. M. A. Desai, Mr. Akash Patel
15	A Process for Simultaneous Extraction of Pectin Mangifer in from Mango Peel	202221016576	Under Process	Dr. M. A. Desai Dr. G.C. Jadeja Mr. Vishal Thakare
16	A Hybrid Vertical Up-flow Forward Osmosis- Membrane Distillation System for the Recovery of Pure Water	202221021065	Under Process	Dr. A. A. Mungray Dr. A. K. Mungray Mr. Asfak Patel

STTP/FDP/CONFERENCES ORGANIZED



The department actively conducts faculty development programmes, short term training programmes and workshops for engineering faculty and industry personnel.

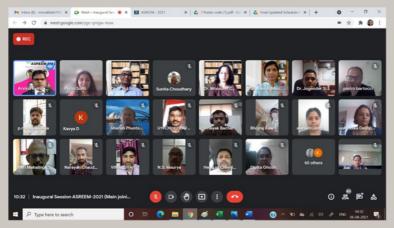
Sr. No.	Name of Programmes	Coordinators	Sponsoring Agency	Duration
1	"Application of Statistical Tools and Modelling in Engineering and Science" (Workshop)	Dr. Sarita Kalla Dr. Pallvita Yadav	SERB, DST, Government of India under Accelerate Vigyan Scheme	07/03/2022 to 13/03/2022
2	National Conference on "Recent Advance in Chemical Engineering towards Sustainable Future"	Dr. Jigisha Parikh Dr. Meghal Desai Dr. Sanjay Patel Dr. G. C. Jadeja Dr. S. K. Sundar In Association with ICT -IOC Bhubaneswar	Self- Sponsored	17/02/2022 to 18/02/2022
3	Advances in Sustainable Research for Energy and Environmental Management	Dr. A. K. Mungray Dr. V.N. Lad Dr. A. A. Mungray Dr. Jogender Singh Dr. M. Chakraborty	Self- Sponsored	06/08/2021 to 08/08/2021
4	"Computational Analysis on Mechanical and Chemical Processes using ANSYS" (Workshop)	Dr. Sarita Kalla Dr. Pallvita Yadav	Self-Sponsored	12/07/2021 to 16/07/2021

STTP/FDP/CONFERENCES ORGANIZED

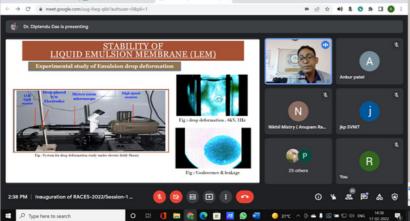




International Conference on "Advances in Sustainable Research for Energy and Environmental Management" (ASREEM-2021)







National Conference on "Recent Advance in Chemical Engineering towards

Sustainable Future"





EXTERNALLY SPONSORED PROJECTS (ONGOING)



The department faculty have managed to acquire sponsored research projects from external agencies as listed below:

Sr. No.	Name of faculty project investigators	Title of project	Funding agency	Duration	Status
1	Dr. S. K. Sundar Dr. J. K. Parikh	Synthesis and rheological characterization of lipsome stabilized emulsion-hydrogel matrix for controlled release of essential oil	Gujarat Council on Science and Technology (GUJCOST), Department of Science and Technology, Gujarat.	3 years (2022 onwards)	Ongoing (Rs.43,95,200/-)
2	Dr. Alka A. Mungray Dr. Arvind Kumar Mungray Dr. S. Sonawane	A compact novel hybrid system for the human urine recycling and potable water recovery for long term human space mission".	Indian Space Research Organization (ISRO), Government of India	2 years (2022 onwards)	Ongoing (Rs.17,50,000/-)
3	Dr. J. K. Parikh Dr. S. K. Sundar	Development of drug delivery systems based on phase change materials	Science & Engineering Research Board (SERB), Department of Science & Technology (DST), New Delhi	3 years (2022 onwards)	Ongoing (Rs. 43,67,264/-)
4	Dr. A. K. Mungray	Production of crude oil and phosphate fertilizer from the faecal sludge: a complete solution for the zero liquid discharge	Science & Engineering Research Board (SERB), Department of Science & Technology (DST), New Delhi	3 years (2022 onwards)	Ongoing (Rs.36,13,764/-)
5	Dr. P. A. Parikh	Catalytic decomposition of waste biopolymers to value added compounds	Gujarat State Biotechnology Mission	1 year (2022 onwards)	Ongoing (Rs. 8,27,160/-)
6	Dr. J. K. Parikh Dr. M. A. Desai Dr. S. R. Patel Dr. G. C. Jadeja Dr. C. M. Patel	Sustainable research infrastructure development under FIST programme	Department of Science & Technology (DST), New Delhi	5 years (2022 onwards)	Ongoing (Rs. 1,68,00,000/-)

EXTERNALLY SPONSORED PROJECTS (ONGOING)



The department faculty have managed to acquire sponsored research projects from external agencies as listed below:

Sr. No.	Name of faculty project investigators	Title of project	Funding agency	Duration	Status
7	Dr. Milap G. Nayak Dr. V. N. Lad	Selective air oxidadtion of 2-chloro toluene to 2-chlorobenzaldehyde using MN-Cu bimetalic supported on ZrO: and CeO2	Department of Technical Education, Gandhinagar	3 Years (2022 onwards)	Ongoing (Rs.2,00,000/-)
8	Dr. V. N. Lad	Development of composite thin films with simultaneous diffraction and magnetic properties	Department of Science & Technology (DST), New Delhi	2 years (2020 onwards)	Ongoing (Rs. 25,30,884/-)
9	Dr. J. K. Parikh	Synthesis of artificial sweeteners and high value chemicals from bio renewable resource using nobel metal aerogel catalyst	Science & Engineering Research Board (SERB), Department of Science & Technology (DST), New Delhi	3 years (2019 onwards)	Ongoing (Rs. 21,45,264/-)
10	Dr. S. R. Patel	Ultrasonic microreactor for production of nano- micro particles of poorly water soluble active pharmaceutical ingredients (API)	Science & Engineering Research Board (SERB), Department of Science & Technology (DST), New Delhi	3 years (2019 onwards)	Ongoing (Rs.51,41,750/-)
11	Dr. M. A. Desai (PI) Dr. G. C. Jadeja (Co-PI)	Mango waste valorization through biorefinery concept: a sustainable and greener approach	Science & Engineering Research Board (SERB), Department of Science & Technology (DST), New Delhi	3.5 years (2018 onwards)	Ongoing (Rs. 50,60,880/-)

CHEMICAL ENGINEERING SOCIETY(CHES), SVNIT

The Chemical Engineering Society was instituted on 16th January 2014. Dr. Alka Mungray, Dr. Jogender Singh and Dr. S.K. Sundar are the current faculty advisors of the student chapter. Affiliated to the American Institute of Chemical Engineering (AIChE), ChES aims to spread knowledge and experience to future chemical engineers about chemical engineering education and its applications.

Over the past years, the chemical engineering society conducted events demonstrating innovation from fun activities and technical events. The various activities undertaken by ChES during 2021-22 are DWSIM Workshop, DWSIM Flow Sheet Design Competition, Internship talk, Alchemy: The Manufacturing Quest, Siphon 7.0, Energyorama, Studying abroad webinar and Eureka 4.0.

OUTSTANDING STUDENT CHAPTER AWARD POPPER AND POPPER AWARD POPPER AWARD

AIChE ChES SVNIT had received the Outstanding Student Chapter Award 2021. We will be hosting the AIChE Student Regional conference 2023, tentatively during Aug-Sep 2023 including workshops, competitions, and ample opportunities for attendees to network with their ChemE peers.









#India #IITBombay #ChemicalEngineering

Congratulations Sardar Vallabhbhai National Institute of Technology, Surat!

(IITB-FOSSEE-DWSIM-2021-22 AIR 01)

Join us in congratulating Sardar Vallabhbhai National Institute of Technology, Surat for securing first place nationally, by making 37 chemical process flowsheet submissions using #DWSIM. This activity is organized by the FOSSEE project which is funded by the National Mission on Education Through ICT, MINISTRY OF EDUCATION, GOVERNMENT OF INDIA.



SVNIT, Surat got featured for securing the first place nationally. The students of the Department submitted 37 DWSIM flowsheets accounting for the highest submissions from all the colleges of the nation. This activity was organized by the FOSSEE project which is funded by the National Mission on Education Through ICT, Ministry of Education, Government of India.

CHEMICAL ENGINEERING SOCIETY(CHES), SVNIT

EUREKA 4.0

It aims to help students get a taste of how research is conducted at ground level and can take initiative to explore their interests. An introductory orientation of EUREKA 4.0 was organized by AIChE ChES for the sophomore students on 9th August 2021, on the Google Meet platform. After completing all the timelines of various tasks at the end participants were asked to present themselves for the final presentation in front of faculty advisors in the beginning of January. The teams concluded their projects and Eureka 4.0 successfully on 8th January 2022.













AICHE ChES conducted 2 days workshop regarding the DWSIM Simulation Software on 9th and 10th October 2021, at 2PM on Google Meet platform. The session was attended by around 65 students.

CHEMICAL ENGINEERING SOCIETY(CHES), SVNIT

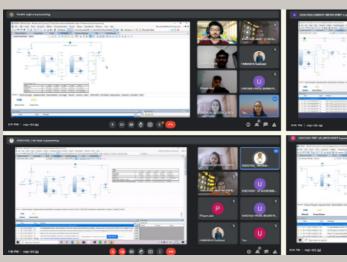


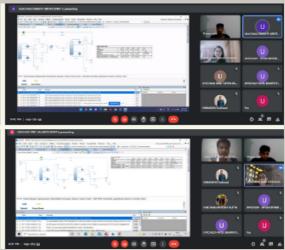
The Social Media Committee released the first edition of the Technical Magazine of AIChE ChES; Emanate-Eulogizing Chemical Engineering.

Find Emanate here:

https://issuu.com/ches svnit/docs/emanate october 2021

AICHE CHES had a colossal competition for designing flow sheets following a successful DWSIM workshop, held between 13th to 16th October 2021 aimed to improve process simulation abilities and grasp the fundamentals of industrial plant design. Around 45 students competed in the flowsheet design competition and top 10 shortlisted candidates were called in for the interview round. Winners were eligible for cash awards worth Rs. 3000 with all participants receiving participation certificates.





The most anticipated festival, Siphon 7.0, AIChE Chemical Engineering Society's annual departmental festival, took place online from 25th to 27th February 2022. Siphon Challenge, Ele-mentals, Startupsy, Terni Lapilli, Industrivia, Periodic Meraki, Fanatic Dare, BGMI Tournament, workshop on Chem-e-car were among the variety of activities that were conducted.



A total of INR 28k in cash prizes were up for grabs for participants.



SIPHON 7.0

STUDENTS AWARDED PHD

(2021-22)

Sr. No.	Thesis title	Name of research scholar	Supervisor(s)
1	Selenium Nanocomposites based Electrochemical Sensor for Detection of Hydrogen Peroxide	Dumore Nilesh	Dr. M. Mukhopadhyay
2	Enhancement of drug therapeutic efficacy by encapsulation and nanonization in microfluidic systems	Preena Shrimal	Dr. S. R. Patel Dr. G. C. Jadeja
3	Investigation on stability, efficiency and degradation of perovskite solar cells	Saikumar Nair	Dr. J. V. Gohel
4	Investigation of Biofiller- Reinforced Nylon 6 Nanocomposite Using Molecular Dynamics Simulation	Sanjay Krishna	Dr. C. M. Patel
5	Preparation, Characterization and Electrochemical Perfomance of High Mass Loading Ruthenium Oxide Based Nanocomposite for Supercapacitor	Chirag Chamanlal Mevada	Dr. M. Mukhopadhyay

STUDENTS' ACHIEVEMENTS

(2021-22)

As a part of extra and co-curricular activities, students of SVNIT participated in various events organized at National and International levels. Students have obtained several awards for their contributions.



Sr. No.	Name	Admission number	Program
1	Vishal Sharma	U17CH030	AIR 8 in GATE 2022
2	Jinesh Modi	U17CH032	AIR 53 in GATE 2022
3	NisanthTripathikumar Jena	U17CH060	AIR 405 in GATE 2022
4	Ashutosh Devasi	U19CH044	Awarded by highest rank in NCC Senior Under Officer (SUO)
5	Pranjal Maheshwari	U19CH078	Awarded as best dancer in NCC CATC camp 2021
6	Asfak Patel	Ph.D. Student	Awarded for the Most promising young achievers award by ACS Sustainable Chemistry, August 2021
7	Asfak Patel	Ph.D. Student	Working as a team member on project from ISRO entitled "A Compact Novel Hybrid System for the human urine recycling process and potable water recovery for long-term human space mission"

STUDENTS' PLACEMENT (2021-22)



The department seeks the participation of various organizations and facilitate to recruit the talent that best suits their profile. The placement of final year students starts in the beginning of the academic year. The company visits the campus on an allotted day and makes pre-placement talk, conducts tests and interviews, and selects the candidates. The motivated and well-trained students of chemical engineering are contributing the best of their talent, sincerity and competence. The students are recruited by prominent industries like BASF, Aditya Birla, SRF, Sun Pharma, Reliance Industries, UPL, TCS, Deloitte, etc.

Name	Industry Placed
Patel Shyamal Paresh Bhai	SRF Chemicals
Jai Sharma Sahil Rajiv Shahi Priyal Panda	Ugam Solutions
Nandha Purva Nandlal	Aditya Birla
Shridhar Dhanani Hemik Modi Sahil Makwana Makwana Kirti Agrawal Vijay Anilkumar Yash Darji Sahil Hasan Pathan	Reliance Industries
Mandeepsinh Jadeja PaavanRupapara Mahendra Singh Aayushi Gupta Disha Halder Gaurav Tayade	UPL
Devkumar Mehta Yashkumar Parmar Subham	Navin Flourine
Avi Koyani Akshit Mohan Bikash Kumar Mandal	Tredence

Name	Industry Placed
Sagar Jariwala Deepanshu Parihar Mohit Varun Jain	Aarti Industries
Rana Rushabh Shailendra Vivek Doshi Rahul Chaudhary	Sun Pharma
Vaidik Lad	GMM Pfaudler
Dev Parihar	Capgemini
Abhinav Singhal	Ganit Business Solutions
Vraj Patel Amit Yadav	PI Industries Limited
Jinesh Rampuria	DFPCL
Devanshu Wadhwani	EXL
Viraj Brijesh Gajjar Raviraj Panchasara	Wipro/Ugam Solutions
Prayas Girish Mishra	PharmaAce

STUDENTS' PLACEMENT (2021-22)



Name	Industry Placed
Khairnar Yogesh Arunbhai Kaushal Saraf Jadhav Yogesh Rathva Prakashbhai	Wonder Cements
Subodh Nayak	TCE
Shridhar Dhanani Arundhati Sharma Utkarsh Gangwar Riya Shah Makwana Kirti Patel Nidhi Chandrakant Shridhar Dhanani	Cairn Vedanta
Sheetal Maheshwari Ashutosh Dash Hardik Khandelwal	ZS Associates

Name	Industry Placed
Dhyey Patel Rashi Agrawal Shrishti Singh Aakash Shinde DevenTak Prabhu Sharan Singh Shipra Novil Pradhuman Sharma Kailash Choudhary	Deloitte
Adarsh Singh	Axxela
Seemoli Jayeshbhai Patel	Accenture
Aayushi Gupta Yashkumar Girishkumar Parmar	BASF
Mahendra Kumar Bharti	KRIBHCO (through GATE score)

STUDENTS' HIGHER STUDIES (2021-22)

Name	Degree/ Exam
Sudhanshu Chandel	MBA MICA, Ahmedabad
Nidhi Chandrakant Patel	M.Engg Chemical Engineering University of Ottawa
Nimesh Chauhan	M. Tech. SVNIT, Surat
Nilesh Parmar	M. Tech. SVNIT, Surat