BITS Pilani
Pilani Campus

DEPARTMENT OF CHEMICAL ENGINEERING

ME PROGRAM

I SEM 2022-23




innovate achieve lead

Opinion by ChE ME Alumni about HD Programme at BITS Pilani

Sai Hitesh Bhandaru; 2019 Batch, Data Scientist, Ingenero Technologies Pvt. Ltd.

- Learnt the art of research, importance of literature study during thesis at BITS.
- BITS provided me with facilities along with good supervisors.

Shravan Pradeep, 2015 Batch, Postdoctoral Research Associate, University of Pennsylvania

- Dissertation program helped me in gaining fundamental research skills.
- I was able to publish three articles and apply for good PhD in the United States.

Abhay Shrangraj, 2019 Batch, Project Engineer, Glatt India Engineering Pvt. Ltd.

- The program improved my understanding of chemical engineering core fundamentals and applications in industrial world ,Thus providing an edge during personal interviews.

Devesh Saxena, 2019 Batch, Doctoral student, Dept. of Chemical Engineering, IIT Delhi

- One year thesis program at BITS helped in understanding the various aspects of research, journals, publication and state of art in the field of chemical engineering.
- The masters program overall has acted as a bridge between the undergraduate and higher degree courses that I chose.

Devendra purbia, 2019 Batch, Scientist, Aditya birla group

- The project work for each subject at M.E program of Bits -pilani has helped a lot in understanding various aspects of engineering which are relatable to industry.
- Dissertation mode at Bits helped in understanding the various aspects of research , journal publication and state of art concepts in the field of chemical engineering

Sumeet Ghosalkar, 2014 Batch, Manager, L&T Hydrocarbon engineering Limited

- Good overall development achieved during 1 year thesis.
- The program Improved my understanding of chemical engineering core fundamentals.

Poornima Kalyanram, 2017 Batch, Lipid Scientist at Archer Daniels Midland Company, USA

- Worked on differernt analytical instruments, which later helped me secure a PhD and a research job in the industry.
- HD thesis helped me understand research better and gave me the freedom to explore and groom myself as a researcher.

Indraja S, 2019 Batch, Doctoral Student at Faculty of Medicine, University of Oulu

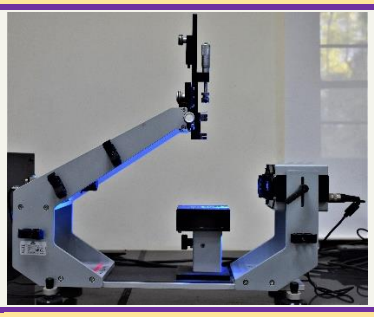
- Thesis mode helped me with improving attitude towards research. I learnt the importance of thinking and having ideas.
- I was able to secure my PhD position because of the skills I gained during my thesis.

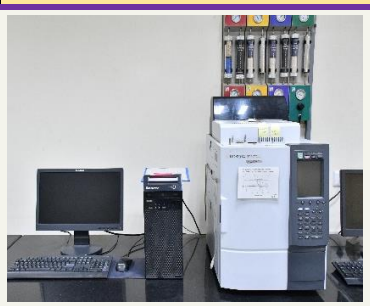
Department at a Glance

The Department of Chemical Engineering at BITS-Pilani, Pilani Campus is one of the premier departments in the country that provides a unique educational and research environment. The broad vision of the Department of Chemical Engineering is to excel in teaching/learning, innovative research and industry engagement and to disseminate the same in order to become a world leader in chemical engineering and allied interdisciplinary areas. The primary mission of Department of Chemical Engineering is to enable the students to imbibe technical and analytical skills through the culture of logical and critical thinking. The other goal is to establish modern infrastructure and conducive research environment for carrying out academic and sponsored research.

UV-VIS Spectrophotometer


Confocal Microscope


Contact Angle Goniometer


GC-MS

Vision of the department

To excel in teaching/learning, innovative research and industry engagement and to disseminate the same in order to become a world leader in chemical engineering and allied interdisciplinary areas.

Mission of the department

- To impart quality education and training in chemical engineering and associated fields to enable the students to imbibe technical and analytical skills through the culture of logical and critical thinking.
- To inculcate sense of social and environmental responsibility among students which inspires them to apply chemical engineering principles in solving industrial problems through sustainable and eco-friendly technologies for the betterment of industry and nation.
- To establish modern infrastructure and conducive research environment for carrying out academic and sponsored research.
- To foster spirit of excellence and professional leadership in students and faculty members through exposure to leading academic institutions, research organizations and external experts.
- To generate suitable opportunities for sustained interaction and collaboration with academia and industry.

HoD Message


Dr. Banasri Roy

Established in 1964, the Chemical Engineering Department of BITS Pilani, Pilani campus surpassed more than 56 years. We are in a mature state where main areas of academics; teaching, research, and industrial engagement, are explored and developed. The expertise of the young dynamic faculty members, hand-picked from the renowned and prime institutes, span the whole spectrum of the multidisciplinary nature of the Chemical Engineering and aligned subjects. Here students, are exposed to a high standard teaching quality, state of the art research endeavor, and world class industrial applications. Our aim is to inculcate the social and environmental responsibility and wellbeing in the young minds while we train the students to be future leaders in industries and academics. Chemical Engineering Department has been ranked in the top 351-400 by QS World University Subject Rankings 2020 and in top 14 in India. We are thriving to excel more day to day. Our ME alumni are speeded in different parts of the world and we are proud for their accomplishment and contribution in the technical and academic fields. We invite and encourage the enthusiastic hard working students, with strong technical background, proper analytical skills, and logical and critical thinking, to be part of our legacy. Together we can build the future.

Academic Programmes

B.E. Chemical Engineering

Admission is purely merit basis, according to the score obtained in BITS Admission Test (BITSAT). Students, who are appearing for 12th or have passed 12th Examination the very previous year only are eligible to appear in the BITSAT. Additionally, students must fulfill the requirement of minimum 75% PCM marks in 12th examination. There are approximately 90 Experimental Setups, Covering Process Control, Heat Transfer, Mass Transfer, Fluid Mechanics, Reaction Engineering, Mechanical Operations, Engineering Chemistry, etc., as a part of the departmental under graduate teaching curriculum.

For more details: http://www.bitsadmission.com/

WILP (Work Integrated Learning Program)

It is a continuing technical education programs designed to create a smarter future ready workforce for the organizations. Since 1979, WILP has helped corporate leaders to connect their learning investments with their business. Additionally, this program significantly contributes toward productivity enhancement, employee retention and succession planning in organizations. There are more than 30 programmes, 90 corporate partners, and 1000 faculty members connected in this program, while 20000 working professional are enrolled currently and 70000 working professional graduated out so far.

For more details: https://bits-pilani-wilp.ac.in/programmes-for-organisation.php

M.E. Chemical Engineering

There are two routes of admission; one in through GATE and other is through HD test. This higher degree program of department is research centric and prepares the students for a productive research/professional career. This degree provides salient features such as intensive research training under one-year dissertation option, rigorous industrial exposure under six-month practice school option, hands on experience in the state of the art analytical instrumentation and software facilities, unique research methodology training by the faculty members, and thorough teaching training under experienced faculty members. There is a Provision for vertical transfer from ME to PhD Program.

For more details: http://www.bitsadmission.

Doctor of Philosophy (Ph.D.)

The conventional, research-based doctoral degree programme provides a thorough grounding in the fundamental principles of Chemical Engineering, interdisciplines, and related areas, as well as an intensive research experience. There are two types of Ph.D. options as follows:

Full-time program: For the individuals who would like to pursue Ph.D. in-house, residing on campus. These students are eligible to be considered for a monthly Institute fellowship of Rs. 28,000 or Rs. 31,000 (based on qualification) at the time of admission. The selected candidates will be required to participate in teaching and other developmental activities of the institute.

Part-time program: For working professionals to provide basic facilities and environment for research. Applications for Ph.D. programme are invited twice in a year and candidates are selected based on the merit.

For more details: http://www.bitsadmission.com/

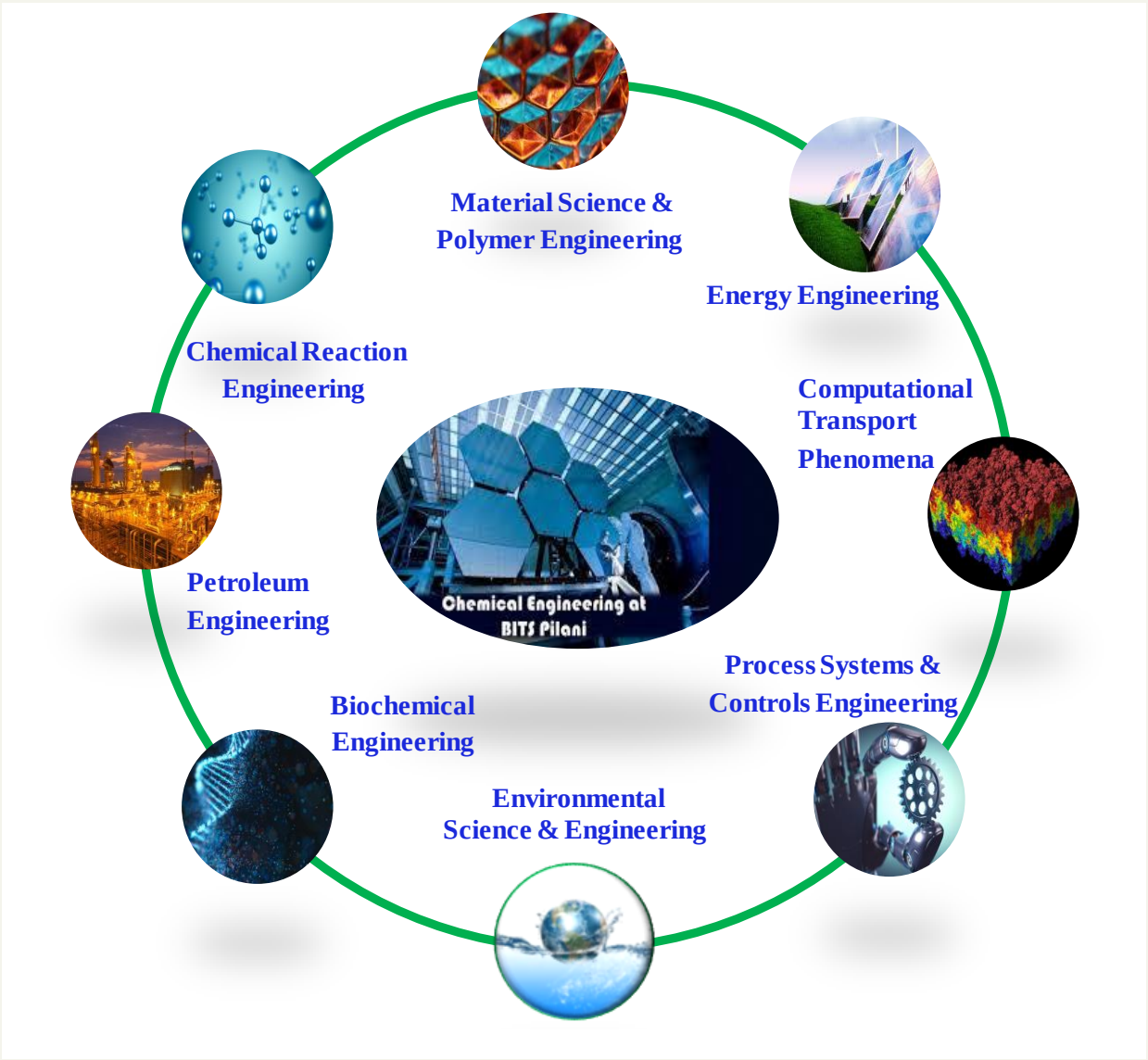
Course Structure ME Programme

Year	Semester I	U	Semester II	U
I	CHE G622 Advanced Chemical Engineering Thermodynamics	5	CHE G641 Reaction Engineering	5
	CHE 523 Mathematical Methods in Chemical Engineering	5	CHE G552 Advanced Transport Phenomena	5
	Elective I	-	BITS G661 Research Methodology I	5
	Elective II	-	Elective III	-
	Total	16 (min)	Total	16 (min)
Semester III			**Semester IV**	
II	Elective IV to Elective VII	16 (min)	PS / Dissertation	16/20
	OR Elective IV AND Elective V AND Dissertation (16 units)	16		

For more details please visit our Chemical Engineering Department's Webpage:

https://www.bits-pilani.ac.in/pilani/chemicalengineering/Courses

Research Areas



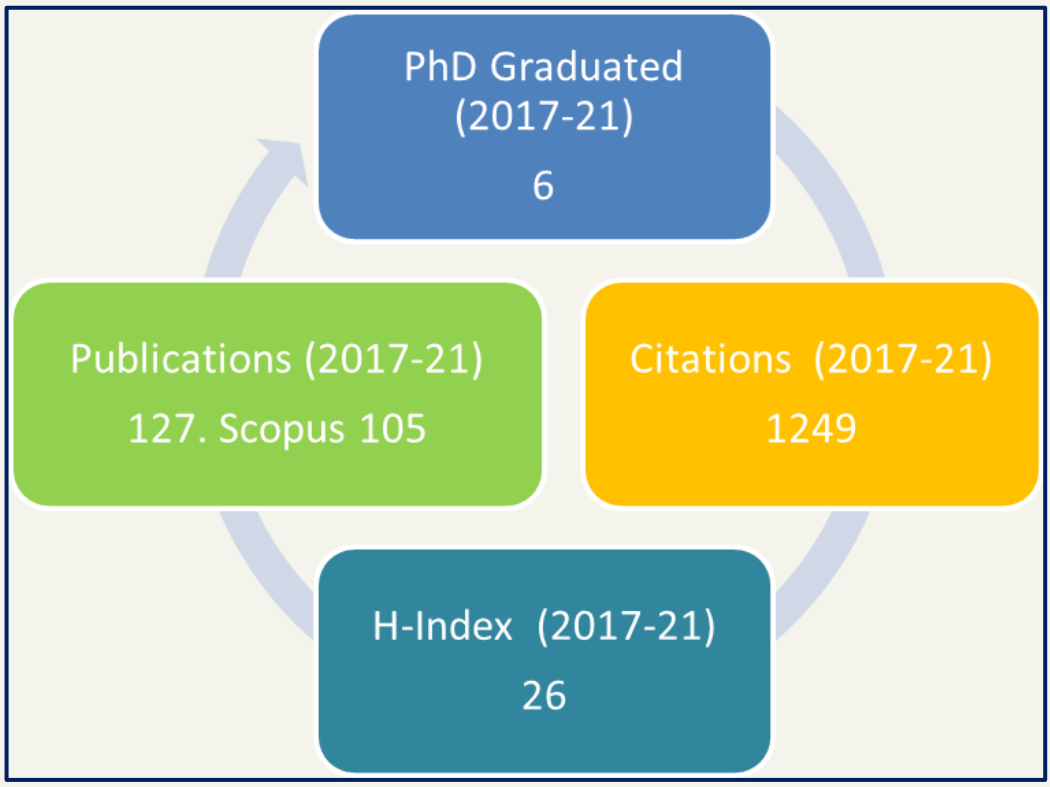
List of ongoing research projects:

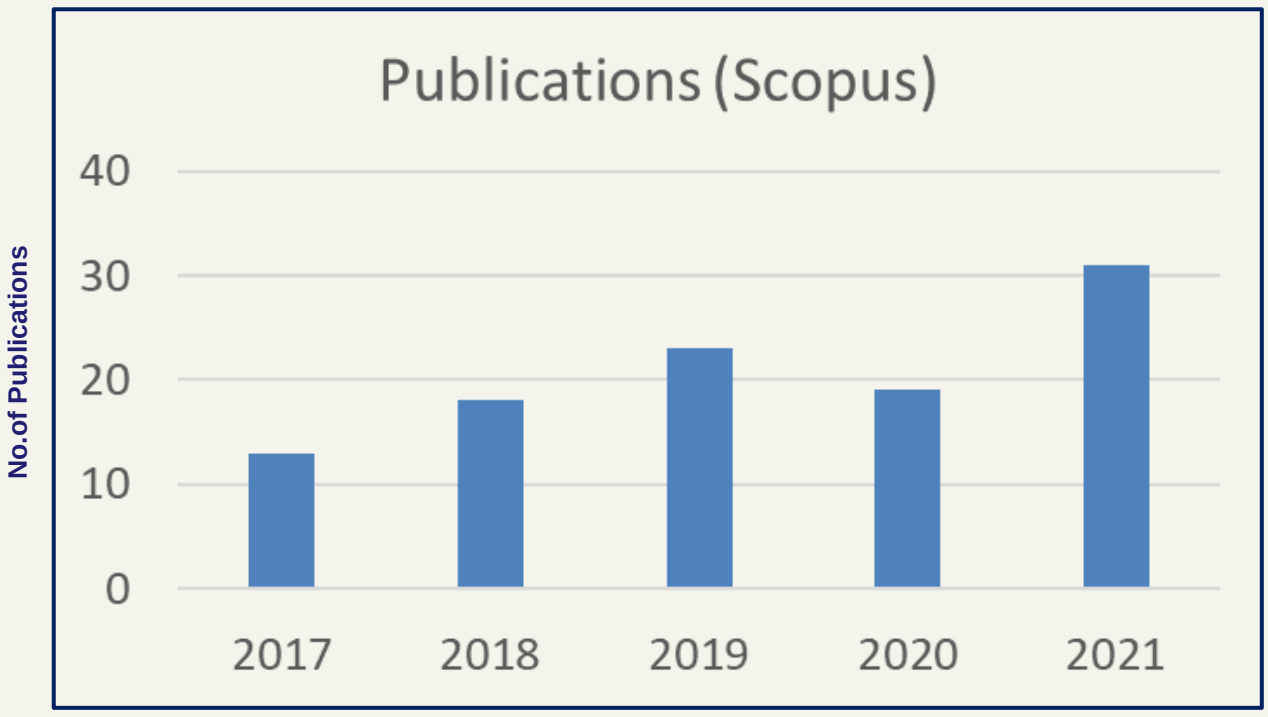
- Dr. Somak Chatterjee, Dr. K. C. Etika, Design and development of inline sensor for water contamination detection - INR 26.67 Lakhs, 2020 - 2022 - Industry (A renowned water filter manufacturer in USA).
- Dr. K.C. Etika, Development of microporous PVC coatings for synthetic leather applications, - INR 7.57 Lakhs, Jan. 2020 - Apr. 2021 - Industry (A renowned synthetic leather manufacturer).
- Pradipta Chattopadhyay, Understanding emulsion kinetics of surfactants, industry sponsored project from Total Oil India Pvt. Ltd.lakhs, Sept. 2020– Aug. 2022
- Prof. Smita Raghuvanshi, Process development for Bio-Mitigation of Flue Gases (CO2, SOx and NOx) using chemolithotrophs and production of value-added products - INR 31.61 Lakhs, 2019 - 2022, CRG, SERB - DST.
- Dr. B.V. Reddy K., Assessment of Mixed-Matrix membrane system for CO_2 separation for upgradation of Biogas to Bio-Compressed Natural Gas (Bio-CNG) - INR 24.47 Lakhs, 2019 - 2021, SRG, SERB - DST.
- Dr. Srinivas Appari, Prevention of Hazardous Field-Firing of Bagasse and Its Sustainable Utilization as a Raw Material in An Innovative Industrial Process - INR 28.79 Lakhs, 2019 - 2021, MHRD - SPARK.

A detailed overview of research projects funded by the institute as well as external grants from industry and several government funding agencies are listed in the following link:

https://www.bits-pilani.ac.in/pilani/chemicalengineering/SponsoredResearchProjects

Academic Research (Publications)





Research Infrastructure

Departmental research activities reflect the interdisciplinary nature of modern Chemical Engineering. Research is organized in numerous themes that cover the contribution to grand challenges in the arena of Chemical Engineering. Department is in sync today`s trend with state-of-the-art facilities in terms of having best of analytical facilities to carry out good research work and best of computational facilities.

Research Facilities

Analytical

- Atomic Absorption Spectrophotometer (AAS)
- Gas Chromatograph (GC)
- Fourier Transform Infrared Spectrophotometer (FTIR)
- Differential Scanning Calorimeter (DSC)
- Thermo Gravimetric Analyzer (TGA)
- High Performance Liquid Chromatography (HPLC)
- BET Surface Area Analyzer
- UV/ VIS Spectrophotometer
- High Speed Photography & Imaging Devices
- X-Ray Diffraction (XRD)
- Field Emission Scanning Electron Microscope (FESEM-EDX)
- Atomic Force Microscope (AFM)
- Pyrolysis Gas Chromatography (Py-GC-MS/MS)
- XPS (X-Ray Photoelectron Spectroscopy)
- Nuclear Magnetic Resonance (NMR)
- Raman Spectroscopy
- Confocal Microscopy

Computational

- ASPEN-HYSYS, ANSYS FLUENT 14.0, SYSTAT gPROMS, CosmoTherm
- MATLAB, ABSOFT, COMSOL Multiphysics
- Open Source Coding Platforms & Data Visualization Tools
- Computer Aided Design Laboratory

List of our state of the art facilities

- Air-Lift Bioreactor
- Fluidized Bed Pyrolysis Unit
- Biofilter Reactor
- Biomass Gasifier
- Pyrolysis Unit
- Continuous Adsorption
- Fixed Bed Reactor
- Low-temperature Steam reforming reactor
- High Pressure Hydrothermal Reactors
- Fermenter
- High Speed Photography and Imaging devices
- PIV
- Reactive Distillation Column
- Saybolt & Engler Viscometer
- Penetrometer Apparatus
- Bomb Calorimeter
- Melting Point & Smoke Point Apparatus
- Oxidation Stability Tester
- Conradson Carbon Residue
- Planetary Ball Mill
- pH and Temperature Controlled Fermentor

Gas Chromatography

NMR

FE-SEM

Raman Spectroscopy

Faculty

Dr. Banasri Roy

Associate Professor and HOD
Ph.D. : Colorado School of Mines, USA
M.Tech.: IIT Kanpur, India

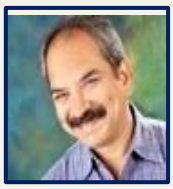
Research Interests:

- Nanocatalysts and Hydrogen production from biomass
- Biomedical materials
- Solar cell devices and processing of solar cell materials
- Fuel cell materials

Selected publications:

- R. Chava, D. Purbia, B. Roy, V. M.Janardhanan, A. Bahurudeen, S. Appari, Effect of Calcination Time on the Catalytic Activity of Ni/γ-Al2O3 Cordierite Monolith for Dry Reforming of Biogas, International Journal of Hydrogen Energy, 46, (2021), pp. 6341-6357.
- S. Sharma, S. Aich, B. Roy, Low temperature steam reforming of ethanol over cobalt doped bismuth vanadate [Bi4(V0.90Co0.10)2O11-δ (BICOVOX)] catalysts for hydrogen production, Journal of Physics and Chemistry of Solids, 148, (2021), p. 109754
- V. Singh, A. Rao, A. Tiwari, P. Yashwanth, M. Lal, U. Dubey, S. Aich, B. Roy, Study on the effects of Cl and F doping in TiO2 powder synthesized by a solgel route for biomedical applications, J. Phys. Chem. Solids, 134, (2019), pp. 262–272.

Google Scholar Page: https://scholar.google.com/citations?user=HF4Inh8AAAAJ&hl=en
Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/broy/profile



Dr. Arvind Kumar Sharma

Associate Professor
Ph.D.: IIT Madras, India
M.Tech: IIT Madras, India

Research Interests:

- Environmental Engineering
- Fluidization and Adsorption
- Biochemical Engineering
- Separation Processes
- Fluid Mechanics

Selected publications:

- R. Chandra, R. Sharma and A. K. Sharma, Attrition of Bed Particles in a Recirculating Fluidized Bed Reactor, IEA Clean Coal Centre's 8th International Conference on Clean Coal Technologies (CCT 2017), May 8 -12, 2017, Cagliari, Italy.
- Joshi L., K. Tripathi and A. K. Sharma, Loop Reactors: Advancing Reactors Realm, International Symposium & 69th Annual Session of IIChE in association with International Partners (CHEMCON – 2016), Dec 27-30, 2016, Chennai, India.
- Sai N. K., G. Verma, A. Preetam and A. K. Sharma, Biological Thermodynamics – A review, International Symposium & 68th Annual Session of IIChE in association with International Partners (CHEMCON – 2015), Dec. 27-30, 2015, Guwahati, India.

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/arvinds/Profile

Dr. Suresh Gupta

Professor
Ph.D.: BITS Pilani, Pilani Campus
M.Tech.: IIT Kanpur, India

Research Interests:

- Environmental Engineering
- Separation Processes
- Modeling and Simulation
- Computational Transport Phenomena
- Environmental Management Systems (LCA, EIA)

Selected publications:

- Anand, S. Raghuvanshi, S. Gupta, Trends in Carbon Dioxide (CO2) Fixation by Microbial Cultivations. Current Sustainable/Renewable Energy Reports, 7, (2020), pp. 40–47.
- S.K. Pradhan, V. Pareek, J. Panwar, and S. Gupta, Synthesis and characterization of ecofriendly silver nanoparticles combined with yttrium oxide (Ag-Y2O3) nanocomposite with assorted adsorption capacity for Cu(II) and Cr(VI) removal: A mechanism perspective, Journal of Water Process Engineering, 32, (2019), p. 100917.
- S. Mishra, S. Raghuvanshi, S. Gupta, Carbon dioxide to bio-fuels by mixed and pure microbial cultures isolated from activated sludge: relative evaluation of CO2 fixation, biodiesel production, and thermodynamic analysis, Green House Gases: Science and Technology, 9, (2019), pp. 1135-1157.

Google Scholar Page : https://scholar.google.com/citations?user=tqwaWI8AAAAJ&hl=en&oi=ao
Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/sureshg/profile

Dr. Hare Krishna Mohanta

Associate Professor
Ph.D.: BITS Pilani, Pilani Campus
M.Tech.: IIT Kanpur, India

Research Interests:

- Process Modeling and Control
- Reactive distillation
- Petroleum refining
- Modeling and Simulation
- Fuel cell materials

Selected publications:

- Pani, A. K., & Mohanta, H. K., Online monitoring of cement clinker quality using multivariate statistics and Takagi-Sugeno fuzzy-inference technique, Control Engineering Practice, 57, (2016), pp. 1-17.
- Singh, P.K., Bhanot, S., & Mohanta, H.K., Particle Swarm Optimization based Fuzzy Logic Control of pH Neutralization Process, International Journal of Applied Engineering Research, 10, (2015), pp. 211-215.
- Pani, A. K., & Mohanta, H. K., Online monitoring and control of particle size in the grinding process using least square support vector regression and resilient back propagation neural network. ISA transactions, 56, (2015), pp. 206-221.

Google Scholar Page: https://scholar.google.com/citations?user=cxaKC3MAAAAJ&hl=en&oi=ao

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/harekrishna/profile

Dr. Pratik N. Sheth

Associate Professor
Ph.D.: BITS Pilani, Pilani Campus, India
M.E : BITS Pilani, Pilani Campus, India

Research Interests:

- Pyrolysis, Modeling and Simulation
- Alternate Energy Resources
- Computational Fluid Dynamics
- Process Control

Selected publications:

- Pandey, B., Prajapati, Y.K., and Sheth, P.N., Recent progress in thermochemical techniques to produce hydrogen gas from biomass: A state of the art review, International Journal of Hydrogen Energy, 44, (2019), pp. 25384-25415.
- Patra, T. and Sheth, P.N., Biomass gasification coupled with producer gas cleaning, bottling and HTS catalysis treatment for H2-rich gas production, International Journal of Hydrogen Energy, 44, (2019), pp. 11602 - 11616.
- Patra, T., Mukherjee, S. and Sheth, P.N., Process Simulation of hydrogen rich gas production from producer gas using HTS Catalysis, Energy, 173, (2019), pp. 1130-1140.

Google Scholar Page: : https://scholar.google.co.in/citations?hl=en&user=S6Im2SYAAAAJ

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/pratik/profile

Dr. Smita Raghuvanshi

Associate Professor
Ph.D.: BITS Pilani, Pilani Campus, India
M.E : BITS Pilani, Pilani Campus, India

Research Interests:

- Environmental Engineering
- Separation Processes
- Modeling and Simulation
- Computational Transport Phenomena
- Environmental Management Systems (LCA, EIA)

Selected publications:

- S Sambamurthy, S Raghuvanshi, KS Sangwan, Environmental impact of recycling spent lithium-ion batteries, Procedia CIRP, 98, (2021), pp. 631-636.
- Khandelwal, A. Anand, S. Raghuvanshi, S. Gupta, Integrated approach for microbial carbon dioxide (CO2) fixation process and wastewater treatment for the production of hydrocarbons: Experimental studies, Journal of Environmental Chemical Engineering, 9(3), (2019), p. 105116.
- R.P. Singh, S. Mishra, S. Raghuvanshi, P.N. Jha , GC-MS analysis of change in fatty acid composition of halobacterium bacillus licheniformis hsw-16 under varying salinity condition, Journal of Microbiology, Biotechnology and Food Sciences, (2021), pp. 290-292.

Google Scholar Page: https://scholar.google.com/citations?user=EtO5v14AAAAJ&hl=en&oi=ao

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/smita/profile

Dr. Pradipta Chattopadhyay

Assistant Professor
Ph.D.: University of Tulsa, USA
M.S. : Texas A&M University-Kingsville, USA

Research Interests:

- Foam property evaluation
- Modeling and characterization
- Aqueous foam stability

Selected publications:

- Karthick, M. Chauhan, M. Krzan, P. Chattopadhyay, Potential of surfactant foam stabilized by Ethylene glycol and Allyl alcohol for the remediation of diesel contaminated soil, Environmental Technology & Innovation, 14,(2019), pp. 1-10.
- Karthick, B. Roy, P. Chattopadhyay, Comparison of zero-valent iron and iron oxide nanoparticle stabilized alkyl polyglucoside phosphate foams for remediation of diesel-contaminated soils, Journal of Environmental Management, 240, (2019), pp. 93-107.
- Karthick, B. Roy, P. Chattopadhyay, A review on the application of chemical surfactant and surfactant foam for remediation of petroleum oil contaminated soil, Journal of Environmental Management, 243, (2019), pp. 187-205.

Google Scholar Page: https://scholar.google.com/citations?user=AQ4sbhsAAAAJ&hl=en&oi=ao

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/pradipta/profile

Dr. Srinivas Appari

Assistant Professor
Post Doc.: IMCE, Kyushu University, Japan.
P.hD. : IIT Hyderabad, India
M.Tech.: JNTU Hyderabad, India

Research Interests:

- Heterogeneous Catalysis
- Detailed Kinetic Modeling
- Waste to Energy
- Modeling, Simulation& Control

Selected publications:

- R. Chava, D. Purbia, B. Roy, V. M. Janardhanan, Bahurdeen A, S. Appari, Effect of Calcination Time on the Catalytic Activity of Ni/γ-Al2O3 Cordierite Monolith for Dry Reforming of Biogas, International Journal of Hydrogen Energy, 46(9), (2021), pp. 6341-6357
- G. Athira, A. Bahurudeen, S. Appari, Rice Straw Ash as a Potential Supplementary Cementitious Material: Influence of Thermochemical Conversion on its Properties, Journal of Materials in Civil Engineering, 33(6), (2021).
- G. Athira, A. Bahurudeen, S. Appari, Sustainable alternatives to carbon intensive paddy field burning in India: A framework for cleaner production in agriculture, energy, and construction industries, Journal of Cleaner Productions, 236, (2020), p. 117598.

Google Scholar Page : https://scholar.google.com/citations?user=AQ4sbhsAAAAJ&hl=en&oi=ao

Faculty Profile Webpage: https://www.bits-pilani.ac.in/pilani/srinivasappari/profile

Dr. Ajaya Kumar Pani

Assistant Professor
Ph.D.: BITS Pilani, Pilani Campus, India
M.Tech.: IIT BHU, India

Research Interests:

- Process Control and Process Modelling
- Virtual Instrumentation
- Artificial Intelligence and Soft Computing Applications in Chemical Engineering

Selected publications:

- Singh, H., Pani, A. K., Mohanta, H. K., Quality monitoring in petroleum refinery with regression neural network: Improving prediction accuracy with appropriate design of training set, Measurement, 134, (2019), pp. 698-709.
- Morey, A., Pradhan, S., Kumar, R. A., Pani, A. K., Vijayan, V. S., Jain, V., Gupta, A., Pollutant monitoring in tail gas of sulfur recovery unit with statistical and soft computing models. Chemical Engineering Communications, 206, (2019), pp. 69-85.
- Siddharth, K., Pathak, A., Pani, A.K., Real-time quality monitoring in debutanizer column with regression tree and ANFIS. Journal of Industrial Engineering International, 15, (2019), pp. 41-51.

Google Scholar Page : https://scholar.google.co.in/citations?user=T67UsvkAAAAJ&hl=en

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/akpani/profile

Dr. Amit Jain

Assistant Professor
Ph.D. : BITS Pilani, Pilani Campus, India
M.E. : BITS Pilani, Pilani Campus, India

Research Interests:

- Process Control
- Environmental Engineering
- Biochemical Engineering
- Fluid Mechanics
- Modeling and Simulation

Selected publications:

- V. Revanth, S. Gaur and A. Jain, Effect of aeration rates on rhamnolipid production by Pseudomonas aeruginosa in a batch bioreactor, Proceedings of Recent Advancements in Biochemical Engineering and Biotechnology [RABEB-2019], (2019), School of Biochemical Engineering, Indian Institute of Technology (BHU) Varanasi, India.
- V. Revanth, G. Shailee and A. Jain, Effect of aeration rates on rhamnolipid production by Pseudomonas aeruginosa in a batch bioreactor, Proceedings of Recent Advancements in Biochemical Engineering and Biotechnology [RABEB-2019], (2019), Indian Institute of Technology (BHU) Varanasi, India.
- C. Abhijeet and J. Amit. Studies on closed-loop interaction in a multi-loop single tank control system, International Journal of Engineering & Technology, 7, (2018) pp. 38-41.

Google Scholar Page: https://scholar.google.com/citations?user=bNqEQ7wAAAAJ&hl=en&oi=ao

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/amitjain/profile

Dr. Priya C. Sande

Assistant Professor
Ph.D.: BITS Pilani, Pilani Campus, India
M.E.: BITS Pilani, Pilani Campus, India

Research Interests:

- Computational Fluid Dynamics
- Process Simulation

Selected publications:

- A.C. Jenifer, P. Sharon, A. Prakash, P.C. Sande, A Review of the Unconventional Methods Used for the Demetallization of Petroleum Fractions over the Past Decade, Energy & Fuels, 29, (2015), pp. 7743-7752.
- P.C. Sande, S. Ray, Fine Mesh Computational Fluid Dynamics Study on Gas-Fluidization of Geldart A Particles: Homogeneous to Bubbling Bed, Industrial & Engineering Chemistry Research, 55, (2016), pp. 2623-2633.
- P.C. Sande, S. Ray, Mesh size effect on CFD simulation of gas-fluidized Geldart A particles, Powder Technology, 264, (2014), pp. 43-53.

Google Scholar Page: https://scholar.google.com/citations?user=HFMkLYkAAAAJ&hl=en&oi=sra

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/priya/Profile

Dr. Bhanu Vardhan Reddy Kuncharam

Assistant Professor
Post Doc.: Worcester Polytechnic Institute, USA
P.hD.: Texas A&M university, Texas, USA

Research Interests:

- Membrane Separations (Mixed Matrix Membranes, Catalytic Membranes)
- Computational Fluid Dynamics,
- Catalysis and Reactor Engineering

Selected publications:

- Neha J., Nirmal Kumar S., Priya T. S., B.V.R Kuncharam, Synthesis And Characterization Of Mixed-Matrix Material of Zirconium Based Metal Organic Framework (MOF: UiO-66-NH2) And Poly(Ether-Urethane-Urea), Materials Today: Proc, 28 (2), (2020), pp. 734-738.
- B.V.R Kuncharam, and A.G Dixon, "Multi-scale two-dimensional packed bed reactor model for industrial steam methane reforming", Fuel Processing Technology, 2020, 200, p. 106314
- B.V.R Kuncharam, and B. A. Wilhite, “Theoretical Investigation of a Water-Gas-Shift Catalytic Membrane for Diesel Reformate Purification”, AIChE Journal, 2013, 59, pp. 4334–4345.

Google Scholar Page: https://scholar.google.com/citations?user=kkBb-dMAAAAJ&hl=en

Faculty Profile Webpage: https://universe.bits-pilani.ac.in/pilani/bhanuvardhan/profile

Dr. Krishna C. Etika

Assistant Professor
Post Doc. : IIT Madras, India
Ph. D.: Texas A&M university, Texas, USA
M.Tech. : IIT Kharagpur, India

Research Interests:

- Multifuctional Materials
- Polymer Nanocomposites
- Nanotechnology
- Stealth Technology

Selected publications:

- K. Bhaskaran, R.K. Bheema, K.C.Etika, The influence of Fe_3O_4@GNP hybrids on enhancing the EMI shielding effectiveness of epoxy composites in the X-band, Synthetic Metals, 265, (2020), pp. 116374.
- V.U. Varun, B.R. Kumar, K.C.Etika, Hybrid polymer nanocomposites as EMI shielding materials in the X-band, Materials Today: Proceedings, 28(2), (2020), pp. 796.
- V. Chavhan, Md., K.C. Etika and A. Mukhopadhyay, "The Design of Personnel ProtectiveClothing For Protection Against Cbrn Agents: A Review", Filtration ,18(2), (2018), pp. 98-117

Google Scholar Page: https://scholar.google.com/citations?user=e4kYT2IAAAAJ&hl=en&oi=sra

Faculty Profile Webpage: https://www.bits-pilani.ac.in/pilani/etikakrishna/Profile

Dr. Somak Chatterjee

Assistant Professor
Ph.D.: IIT Kharagpur, India
M.Tech.: IIT Kharagpur, India

Research Interests:

- Adsorption
- Membrane
- Sensors
- Aesthatic Design
- Biocidal Extraction

Selected publications:

- S. Chatterjee, M. Mukherjee and S. De, Groundwater defluoridation and disinfection using carbonized bone meal impregnated polysulfone mixed matrix hollow-fiber membranes, Journal of Water Process Engineering, 33, (2020), pp.101002-101013.
- S. Chatterjee, A. Jain, S. De, Cloud point assisted extraction for preconcentration of thymol from water extract of Ajwain (Trachyspermum Ammi L.) seeds, Journal of Food Science and Technology, 54, (2017), pp. 4353-4361.
- S. Chatterjee, M. Mukherjee and S. De, Defluoridation using novel chemically treated carbonized bone meal: batch and dynamic performance with scale-up studies, Environmental Science and Pollution Research, 1, (2018), pp. 1-18.

Google Scholar Page: https://scholar.google.com/citations?user=6OfOUlwAAAAJ&hl=en&oi=ao

Faculty Profile Webpage: https://www.bits-pilani.ac.in/pilani/somakchatterjee/profile

Dr. Arkoprovo Ghosal

Assistant Professor
Ph. D.: University of Illinois, Chicago, USA
M.Sc. : University of Stuttgart, Germany

Research Interests:

- Computational Fluid Dynamics
- Micro- and Nano-scale Transport Phenomena
- Hydrodynamics and Rheology of Jets, Films and Drops
- Stochastic modeling of Flow through Porous Media

Selected publications:

- Chen, K., Ghosal, A., Yarin, A.L. and Pourdeyhimi, B., Modeling of spunbond formation process of polymer nonwovens. Polymer, 187, (2020), p. 121902.
- Ghosal, A., Chen, K., Sinha-Ray, S., Yarin, A.L. and Pourdeyhimi, B., Modeling Polymer Crystallization Kinetics in the Meltblowing Process. Industrial & Engineering Chemistry Research, 59(1), (2019) pp. 399-412.
- Ghosal, A., Sinha-Ray, S., Sinha-Ray, S., Yarin, A.L. and Pourdeyhimi, B., Numerical modeling and experimental study of solution-blown nonwovens formed on a rotating drum. Polymer, 105, (2016), pp. 255-263.

Google Scholar Page: https://scholar.google.com/citations?view_op=new_articles&hl=en&imq=Arkaprovo+Ghosal#

Faculty Profile Webpage: https://www.bits-pilani.ac.in/Pilani/arkaprovoghosal/profile

Dr. Sarbani Ghosh

Assistant Professor
Post Doc.: Linköping University, Sweden
Post Doc.: IIT Kanpur, India
Ph.D.: IIT Kharagpur, India
M.Tech. : University of Calcultta, India

Research Interests:

- Hydrogen Energy
- Molecular Dynamics Simulation
- Density Functional Theory
- GCMC Simulations
- Electronic Structures

Selected publications:

- S. Ghosh, Y. Chen, X. Liu, I. V. Zozoulenko, M. Fahlman and S. Braun, Experimental and Theoretical Investigation into the Polaron Structures of K-doped Polyfluorene Films, The Journal of Physical Chemistry, 125(1), (2021), pp. 937–945.
- S. Ghosh and I. Zozoulenko, Effect of Substrate on Structural Phase Transition in a Conducting Polymer during Ion Injection and Water Intake: A View from a Computational Microscope, ACS Applied Electronic Materials, 2(12), (2020), pp. 4034–4041.
- M. Moser, T. C. Hidalgo, J. Surgailis, J. Gladisch, S. Ghosh et al., Side Chain Redistribution as a Strategy to Boost Organic Electrochemical Transistor Performance and Stability, Advanced Materials, 32, (2020), p. 2002748

Google Scholar Page: https://scholar.google.co.in/citations?user=gZEIDJIAAAAJ&hl=en

Faculty Profile Webpage: https://www.bits-pilani.ac.in/pilani/sarbanighosh/profile

Dr. Mohit Garg

Assistant Professor
Ph.D. Chemical Engineering, IIT Kharagpur
M.Tech. Chemical Engineering, IIT Roorkee
B.E. Chemical Engineering, D.C.R.U.S.T., Murthal

Research Interests:

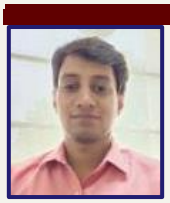
- Computational modeling of nanomaterials
- Coarse Grained Model development
- Ion diffusion in Biological nanochannels

Selected publications:

- Mohit Garg and Venkat Padmanabhan, Addition of P3HT-grafted Silica nanoparticles improves bulk-heterojunction morphology in P3HT-PCBM blends, Scientific Reports, 6, 33219 (2016). (I.F.=4.38).
- Mohit Garg, Mathieu Linares, Igor Zozoulenko, Theoretical rationalization of self-assembly of cellulose nanocrystals: effect of surface modification and counterions. Biomacromolecules, 21 (8), 3069–3080 2020. (I.F. = 6.988)
- Mohit Garg, Varvara Apostolopoulou-Kalkavoura, Mathieu Linares, Tahani Kaldéus, Eva Malmström, Lennart Bergström and Igor Zozoulenko. Moisture uptake in nanocellulose: The effect of relative humidity, temperature and degree of crystallinity, Cellulose, 28, 9007–9021 (2021) (I.F. = 5.04)

Google Scholar Page: https://scholar.google.co.in/citations?user=w2l3zU0AAAAJ&hl=en

Faculty Profile Webpage: https://www.bits-pilani.ac.in/pilani/mohitgarg/profile



Dr. Jay Pandey

Assistant Professor
Poctdoc: University of Amsterdam, Netherlands
PhD: IIT Delhi
M.Tech.: IIT BHU

Research Interests:

- Fuel Cells & Batteries
- Membranes & Electro-catalysts
- Electro-chemical Engineering

Selected publications:

- Jay Pandey, B. Hua, N. Wesley, G. Rothenberg, N. Yan, Developing Hierarchically Porous MnOx/NC Hybrid Nanorods for Oxygen Reduction and Evolution Catalysis, Green Chemistry, 19 (2017) 2793-2797. (IF: 9.5)
- Jay Pandey, Bhagya T. Raju, Performance of Si-PWA/PVA Nanocomposite Membrane for Vanadium Redox Flow Battery (VRB), Journal of Solid State Electrochemistry, 20 (2016) 2259-2265. (IF:2.8).
- Jay Pandey, Fasil Q. Mir, Anupam Shukla, Synthesis of silica immobilized phosphotungstic acid (Si-PWA)-poly(vinyl alcohol) (PVA) composite ion-exchange membrane for direct methanol fuel cell, International Journal of Hydrogen Energy, 39 (2014) 9473-9481. (IF: 3.2)

Google Scholar Page: https://scholar.google.com/citations?user=a1cFRXMAAAAJ&hl=en

Faculty Profile Webpage: https://www.bits-pilani.ac.in/pilani/jaypandey/Profile

Staffs

Mr. Suresh Kumar Sharma
Operation Assistant

Mr. Jangvir
Technical Assistant

Mr. Kuldeep Kumar
Demonstrator

Mr. Ashok Saini
Attendant

Mr. Jeevan Lal Verma
Attendant

Mr. Sunder Lal Harigan
Attendant

WAICEE

The department of chemical engineering conducts a Workshop on Analytical Instruments for Chemical and Environmental Engineers (WAICEE) is held biennially. The workshop provides a sound knowledge of the basic principles of analysis, an understanding of the instrumentation involved, and the opportunity to become familiar with practical techniques. The analytical instruments such as Gas Chromatography, High-Performance Liquid Chromatography, Ultraviolet-visible spectroscopy (UV-VIS Spectrophotometer), Atomic Absorption Spectrophotometer, Fourier Transform Infrared Spectrophotometer, Dynamic Foam Analyzer, Thermal Gravimetric Analyzer, X-Ray Diffraction, Gas Chromatography-Mass Spectrometry, Differential Scanning Calorimetry etc. would be covered. The workshop covers theoretical aspects like an introduction to instrumentation, operation, troubleshooting, calibration, method development, and limitations presented by eminent researchers from allied organizations. The sessions also consist of a practical demonstration on the sophisticated instruments mentioned above.

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

Chemical Engineering Association

Chemical Engineering Association (ChEA) is the largest student body of chemical engineering department responsible for handling various affairs conducted by it throughout the year. The core committee for the Association is inducted every year from among the Freshers, who continue to be a part of it in the future. The Association is headed by a Prof-in-charge, while the student leaders are from the third year. The contributions of the first-yearites towards the Association are acknowledged and serve as a key basis for the selection of both - the team of Second Year Representatives and the Annual ChE Deptt. Awards presented to the meritorious students for curricular and extracurricular activities during the Farewell Ceremony. The Farewell Ceremony is conducted every semester at the end of the Second Semester. The Association apart from conducting the Farewell Ceremony every semester also conducts various guest lectures, seminars and talk shows by famous Academicians, Scholars, reputed Scientists and Eminent Industry Experts having humongous contributions in all facets of nation building.

Indian Institute of Chemical Engineers(IIChE Pilani Capter)

Indian Institute of Chemical Engineers (IIChE) Pilani Regional Center (PRC) actively engages students and faculty in chemical engineering and allied fields through various activities. IIChE PRC conducts various seminars, workshops and invited lectures. IIChE PRC also mentors Student Chapter which conducts various activities for engaging chemical engineering students. IIChE PRC student chapter recently conducted: (a) The Chemicool Challenge was a trivia based on chemicals from everyday life which saw outstanding participation from all over the country, (b) Chem-e-chronicles is an ongoing series of informative interviews of faculty members and research scholars (both PhD and Master's students) which aims at creating awareness about research work and boosting research culture among the students, especially undergraduates.

American Institute of Chemical Engineers

In older times, when the connection with other parts of world was not possible, many a times researchers ended up founding something which was already discovered in other part of world. It would have been so helpful if the researchers had a way of being in touch among themselves and collaborate to enhance the inventions. That exactly serves as the foundational belief of the American Institute of Chemical Engineers (AIChE), the purpose of connecting Chemical Engineering Professionals with a global network of intelligent, resourceful colleagues and their shared wisdom. We, the members of Aiche Bits Pilani aim to delve deeper into core Chemical Engineering and explore various aspects of chemical engineering while focusing on building formal, soft and teamwork skills. We want to create an atmosphere to encourage chemical engineering.




Contact us:

Head of Department, Department of Chemical Engineering,

Birla Institute of Technology and Science (BITS)

Pilani - 333031 (Rajasthan) India

Direct Phone: +91-1596-25-5224

Department Office: +91-1596-25-5215

E-mail: banasri.roy@pilani.bits-pilani.ac.in