PETRO FACTS

2023 - 2024

DEPARTMENT OF PETROCHEMICAL TECHNOLOGY

NBA ACCREDITED

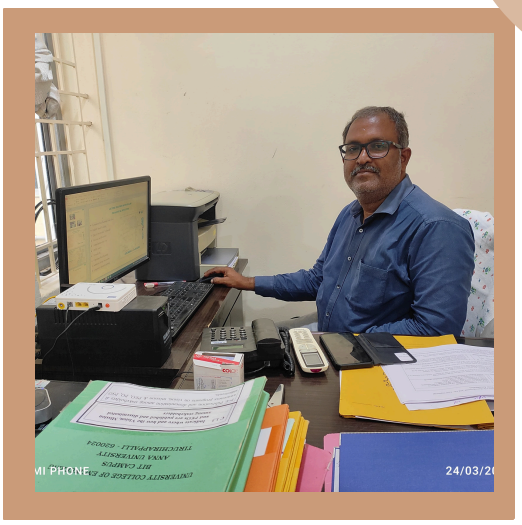
UNIVERSITY COLLEGE OF ENGINEERING

BIT CAMPUS, ANNA UNIVERSITY

THIRUCHIRAPPALLI - 620 024

TABLE OF CONTENTS

STAFF CORNER



DR. S. VENKATESAN
PROFESSOR & HEAD

Our department is not just a place of learning; it is a vibrant community that fosters intellectual growth, creativity, and innovation.

I am delighted to witness the commitment and dedication of our students in their pursuit of knowledge, From groundbreaking research projects to stellar academic performances, our students continue to raise the bar, demonstrating a commendable passion for excellence.

Our esteemed faculty members have played a pivotal role in shaping the academic landscape of our institution. Their tireless efforts in research, teaching, and mentorship have been instrumental in guiding our students towards success. I extend my heartfelt gratitude to each faculty member for their unwavering commitment to academic excellence.

STAFF CORNER

DR. M. ARULMOZHI
PROFESSOR

AWARDS & HONORS

- Best Paper Award for "Optimization of Fuel Oil Yield through Microwave Catalytic Copyrolysis of Waste Plastics and Biomass" at CBSD, Annamalai University (Jan. 24-25, 2025).
- Life member in Indian Society for Technical Education (ISTE) (LM36083)
- Life member in Indian Institute of Chemical Engineers (IIChE) (12080)
- Life member in Institution of Engineers (IE) (M1558360)

RESPONSIBILITIES & RECOGNITIONS

- Coordinator (R&D), UCE, BIT Campus, Anna University, Tiruchirappalli since Sep. 2024.
- Coordinator (PoSH Cell), UCE, BIT Campus, Anna University since 2021.
- Member, Women Empowerment Cell, UCE, BIT Campus, Anna University since Dec. 2024.
- Anna University Nominee for the Academic Council: Nandha Engineering College (2021-2023), Coimbatore Institute of Technology (2022-2024).
- Governing Council Member, United Institute of Technology, Coimbatore (2023-2025).
- NBA Coordinator, Petrochemical Technology, BIT Campus (2013-2015, 2019–present).

PROJECTS & FELLOWSHIPS

- CSRC, Anna University, Chennai funded Rs. 25,000 for the student project "Nano Fertilizers for Enhancing Soil Carbon Sequestration in Precision Agriculture" (Ref: P2425S00065/CSRC, 10/02/2025). Students: K. Madhavan, O. Siddharthan, M. Logesh Raja.
- TNSCST, DOTE Campus, Chennai funded Rs. 7,500 for the 2023-24 student project "Plastics Degradation by Microwave Treatment." Student: Ms. Nishika B S.

NATIONAL CONFERENCE

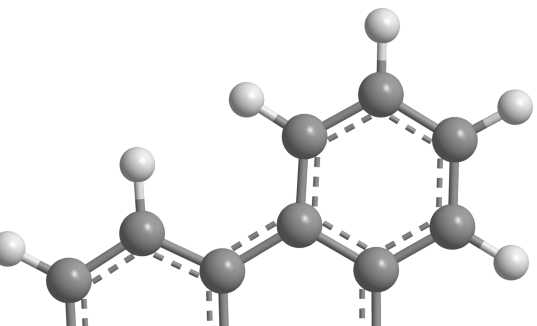
M. Arulmozhi, J. Nandhini, Archana Menon (2025), "Optimization of Fuel Oil Yield through Microwave Catalytic Copyrolysis of Waste Plastics and Biomass", CBSD, Annamalai University, Jan. 24-25, 2025.

INTERNATIONAL CONFERENCE

Sonia Sakthi S, Kumaraguru K, Arulmozhi M, Mirthula T (2025), "Leveraging Machine Learning for Advanced Plastic Pyrolysis: A Review", IRDPAM 2025, UCE, Anna University, Tiruchirappalli, Jan. 6-7, 2025.

INTERNATIONAL PUBLICATIONS

N. Dharuman, M. Arulmozhi, S.K. Ramachandran, G. Sreedhar (2024), "High-Temperature Oxidation of Rare Earth-Based Pyrochlore A2B2O7/YSZ Thermal Barrier Coatings", Material Science and Technology, SAGE Publications, May 2024.



STAFF CORNER

PUBLICATIONS

- Adsorptive removal of 2,4-dichlorophenol using polysulfone/graphene oxide microcapsules with CYPHOS IL 103 ionic liquid – S. Pandirajan, S. Venkatesan, K. Balasubramani, Indian Journal of Chemical Technology, Vol. 31, 2024.
- Removal of 2,4-dichlorophenol using [BMIM]+ [PF6]-encapsulated PVDF membrane – S. Pandirajan, S. Venkatesan, Journal of the Indian Chemical Society, Vol. 100, 2023.

STUDENT PROJECTS

- G. Akash, V. Monish, B. Selvavisagan; Reduction of Pour Point & Wax Deposition in Diesel Fuel using Vegetable Oil Additives; CSRC - 2022.
- S. Nicholes Jones, J. Sooria Narayen; Deep Desulphurisation of Liquid Fuels using Ionic Liquids; CSRC - 2022.

DR. S. VENKATESAN
PROFESSOR & hEAD

AWARDS & RECOGNITIONS

- Dr. S. Venkatesan is permitted to continue as Head of the Department of Petrochemical Technology, University College of Engineering, BIT Campus, Trichy (2024).
- Dr. S. Venkatesan; SCOPUS/WEB OF SCIENCE INDEXED JOURNAL; University College of Engineering, Bharathidasan Institute of Technology - 2023.

CONFERENCE & SYMPOSIUM

- Conducted a two day National Conference, RAACE - 2025 (March) at University College of Engineering, BIT Campus, Trichy -24.
- Conducted a two day National level Symposium, Quimi Feria - 2024 (April) at University College of Engineering, BIT Campus, Trichy - 24.
- Chair person in two day National Conference on “Integrated Approaches on Drug Discovery & Development - Phytodrugs - 2023 (February) organized by Department of Bio - Technology at University College of Engineering, BIT campus, Trichy - 24.
- Judge in the National level Technical Symposium Venzini Fiesta 2022 (October) in the Department of Petrochemical Technology, University College of Engineering, BIT campus, Trichy - 24.
- Coordinator of Velvet Gowns, Robes for the Chief Guest Committee for conduct of the Graduation day 2022 in Tiruchirapalli (October).

STAFF CORNER

ACADEMIC RESPONSIBILITIES

- Coordinator, Entrepreneurship Development Cell, UCE, BIT Campus, Anna University, Tiruchirappalli (2016 – Present).
- Question Paper Setter & External Examiner: Designed and evaluated assessments for various institutions.
- Class Coordinator & Exam Cell Coordinator: Managed class logistics and exam processes.
- Anti-Ragging Member: Ensured a safe and supportive student environment.
- Purchase Committee Member: Handled procurement for academic needs.
- Industrial Visit Incharge & Lab Coordinator: Organized visits and managed Fluid Mechanics & Technical Analysis Lab for Petrochemical Technology.
- Camp Officer, Central Valuation: Supervised valuation for Nov/Dec 2023 exams at UCE, BIT Campus, Anna University.

MEMBERSHIPS

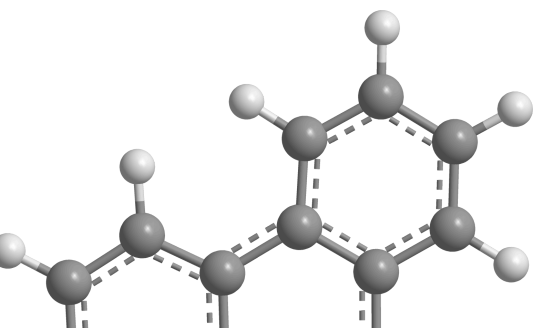
- Inspection Committee Member, Anna University, Chennai: Evaluated institutions for affiliation and academic standards.
- DC Member, VIT & Annamalai University: Contributed to academic program discussions.
- Board of Studies Member, Faculty of Technology, Mahindra Institute of Technology (2024-2027).

EXPERT ROLES

- Expert Member, Question Paper Scrutiny Board, Sethu Institute of Technology: Reviewed and refined examination papers.
- Adjudication Member, Ph.D. Viva Examiner, VIT: Evaluated doctoral candidates for academic rigor.

RECRUITMENT CONTRIBUTIONS

Member, Recruitment Committees for EDII Trichy Hub & Anna Business Incubation Research Forum: Assisted in hiring talent to support entrepreneurship and innovation in Tamil Nadu.



DR. K. KUMARAGURU
ASSOCIATE PROFESSOR

INTERNATIONAL JOURNALS

K. Kumaraguru, P. Saravanan, R. Rajeshkannan, V. Saravanan (2023), “Hexavalent Chromium Adsorption and Elimination Using Brown Marine Algae (Turbinaria ornata)”, Biomass Conversion and Biorefinery, 13(9).

SYMPOSIUM ORGANIZED

The National Level Technical Symposium, QUIMIFERIA'24, was held on April 22-23, 2024, by the Department of Petrochemical Technology, UCE, BIT Campus, Anna University, Tiruchirappalli, bringing together students, researchers, and industry experts for technical sessions and competitions.

STAFF CORNER

PUBLICATIONS

- Hariharan and N. Jaya, Research on Used Transformer Oil (UTO) and Nanoparticles Application, ECS Journal of Solid State Science and Technology, Jan 2023, 11, 121012.
- Wondwosen S Aga, Ayele N Legese, Abebe D Tolche, Negesh T Roba, S Anuradha Jabasingh, Shegaw Ahmed Mohammed, Solomon Kiros Kasaye, N Jaya, J Aravind Kumar, Rural electrification with hybrid renewable energy: a case study of Adem Tuleman, Ethiopia, Energy, Ecology and Environment, July 2023, 8, 420–438.
- Saravanan R., Jaya N., Multistage Boost Converter with Modified Voltage Multiplier, Journal of Electrical Engineering & Technology, 2024.
- Rajesh K., Jaya N., Three-Level DC-DC Boost Converter for Wind Energy, Electric Power Components and Systems, 2024.

WORKSHOP/SEMINAR ATTENDED

- One-day PoSH awareness program on 10th February 2023 at UCE, BIT Campus, Anna University, Tiruchirappalli, organized by PoSH Cell, Anna University Chennai.
- International workshop on Yoga on 7th March 2024 at UCE, BIT Campus, Anna University, Tiruchirappalli, organized by the National Service Scheme, UCE, BIT Campus.

SUMMER/WINTER SCHOOLS

1. AICTE ATAL Academy Online FDP on “Recent Progress in Process Modelling, Simulation, and Process Control” from 6th to 11th January 2025 at NIT Tiruchirappalli.
2. Certificate of achievement for completing 21 days of Yoga Everyday, organized by Mr. Saurabh Bothra, Habuild, Nagpur, Maharashtra.
3. FDP on “Technology-Enabled Teaching, Learning & Process for Institutes” from 3rd to 14th February 2025.

RESOURCE PERSON

- Examiner for Question Paper Setting & Validation, TNPSC (2024).
- Selection Committee Member for JRF recruitment, NIT Tiruchirappalli (Aug 2024).
- Scrutiny Board Member, Dhanalakshmi Srinivasan Engineering College (Apr/May 2023).

DR. N. JAYA
ASSOCIATE PROFESSOR

AWARDS & HONORS

Topper & Elite-Silver certification in NPTEL 12-week course on Fundamentals of Artificial Intelligence, July–October 2024.

AICTE APPROVED COURSES

- NPTEL-AICTE one-week FDP course on "Introduction to Machine Learning" (Tamil), July–September 2024.
- NPTEL-AICTE one-and-a-half-week FDP course on "Fundamentals of Artificial Intelligence," July–October 2024.

MEMBERSHIPS

- Life member in IIChE (LAM – 30619)
- Life member in ISTE (LM 90049)
- Member in IE (M – 1558352)
- Life member in ISCA (L30646)

STAFF CORNER

ACADEMIC RESPONSIBILITIES

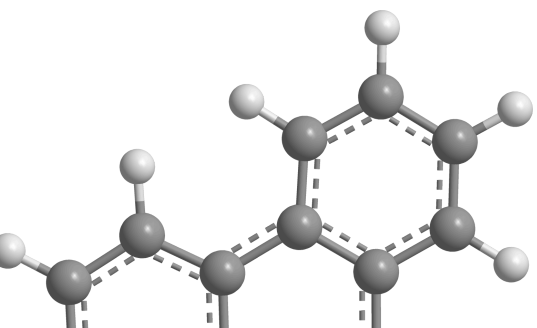
- ACADEMIC RESPONSIBILITIES
- Coordinator, Entrepreneurship Development Cell, UCE, BIT Campus, Anna University, Tiruchirappalli (2016 – Present).
- Question Paper Setter & External Examiner: Designed and evaluated assessments for various institutions.
- Class Coordinator & Exam Cell Coordinator: Managed class logistics and exam processes.
- Anti-Ragging Member: Ensured a safe and supportive student environment.
- Purchase Committee Member: Handled procurement for academic needs.
- Industrial Visit Incharge & Lab Coordinator: Organized visits and managed Fluid Mechanics & Technical Analysis Lab for Petrochemical Technology.
- Camp Officer, Central Valuation: Supervised valuation for Nov/Dec 2023 exams at UCE, BIT Campus, Anna University.

PATENTS

- Design Registration: Pipette with Finger Operated Plunger (Design No: 380615-001), Govt. of India, Cert. No: 138219, 02-03-2023. By Dr. A. Umamaheswari, Dr. S. Lakshmana Prabu, Dr. M. Rengasamy, Dr. N. Jaya, Dr. G. Venkatesan.
- Patent Application: Surface Treated Groundnut Shell Powder Composites (App. No: 202441069144), Govt. of India, 12-09-2024. By Ashwin Prabhu, Dr. N. Jaya, Dr. M. Rengasamy, R. Rangaraja, Dr. V. Anitha, G. Chandra Bose, M. Arivarasu, R. Athithyan, K. Rahul, S. Thejeshwaran, S. Aswin.

AWARDS & HONORS

- NPTEL Topper (Top 5%) in Petroleum Technology (Jul-Sep 2023).
- 100% Pass Result in PM8451 - Petroleum Secondary Processing Technology (Apr-May 2023), Dept. of Petrochemical Tech, UCE BIT Campus, Anna University.



DR. M . RENGASAMY
ASSISTANT PROFESSOR

PUBLICATIONS

- Venkatesan, G., Koteshwaran, S., Rengasamy, M., Rajeshkannan, V., Saravanan, S., Sujatha S., Panchamoorthy Saravanan – Efficient removal of methylene blue using iron nanoparticles synthesized via jujube leaf extract (2023).
- Gayathri, G.D., Rengasamy, M., Thiruneelakandan, R. – EDTA and Leishman stain-doped FeZnS2 nanomaterials for dye removal (2024).
- Saravanan, R., Krishnan, P.N., Rengasamy, M., Manieniyan, V. – Energy, Exergy, Entropy, Emission Factors (4E's) & Sustainability Index analysis of thermal splintering waste paraffin oil blends (2025).
- Saravanan, R., Krishnan, P.N., Sivakumar D. B., Rengasamy, M. – Combustion, Performance, and Emissions of a Diesel Engine using Waste Paraffin Oil blends (2025).
- Gayathri, G.D., Rengasamy, M., Thiruneelakandan, R. – FeNiS2 thin films: Structural, optical, electrical properties & photocatalytic dye degradation (2025).

STAFF CORNER

DR. E. GOMATHI
ASSISTANT PROFESSOR

INTERNATIONAL JOURNALS

- E. Gomathi, V. Chokkalingam, A. Paramasivam, J. Rajprasad – Experimental Exploration of Rice Husk Gasification in Circulating Fluidized Bed Gasifier, Taylor & Francis, 2024, ISBN 978-1-032-90013-1.
- E. Gomathi, T. Senthilvelan, H.S. Rathore, R.C. Panda, P.K. Issac, A. Guru, J. Arockiaraj – Enzymatic Decolorization of Leather Azo Dyes Using Crude Fungal Laccase, Biomass Conversion & Biorefinery, 2023 (IF 4).
- E. Gomathi, P. Maharaja, H.S. Rathore, R. Boopathy, R.C. Panda, T. Senthilvelan, M. Arthanareeswari – Textile Dye Consortium Treatment via Photo-Electro-Fenton Process Using Graphite-Ti Electrode System, Carbon Letters, 2023 (IF 3.1).

CONFERENCES

- Bharath M, Gomathi E (2025) – Reducing Excessive Charging/Discharging in Lithium-Ion Battery Management Systems, ICAMAC 25, Kongu Engineering College, 21-22 Feb 2025.
- Pavithra C U, Gomathi E (2024) – Biosolids Management for Emerging Contaminant Removal – A Review, ICCEP-2024, Sidvi Foundation, Bangalore, 4-5 June 2024.
- Sivamathivanan V, Gomathi E (2024) – Carbon Capture Utilization & Storage for Indian Refineries – Cryogenic Method, ICCEIEEIS-2024, Erode Sengunthar Engineering College, 4-5 April 2024.
- E. Gomathi (2023) – Green Synthesis & Biomedical Applications of Copper Nanoparticles, ICRACER-2023, Jamal Mohammed College, 20 Dec 2023.
- Pavithra C U, E. Gomathi (2025) – Municipal Sludge Management & Urban Agriculture Integration, RACEE-2025, UCE-BIT, Anna University, 7-8 March 2025.
- G.D. Gayathri, E. Gomathi, N. Ilavarasan (2025) – Air Pollution Tolerance Index (APTI) in Tiruchirappalli, RACEE-2025, UCE-BIT, Anna University, 7-8 March 2025.
- E. Gomathi (2024) – Battery Management for Energy-Transportation using Deep Reinforcement Learning, NCOAIML-2024, Erode Sengunthar Engineering College, 27 Dec 2024.

MEMBERSHIPS

- Life Member – ISTE (LM 48369)
- Life Member – IEI (M-1558344)
- Life Member – IIChE (LM-57666)

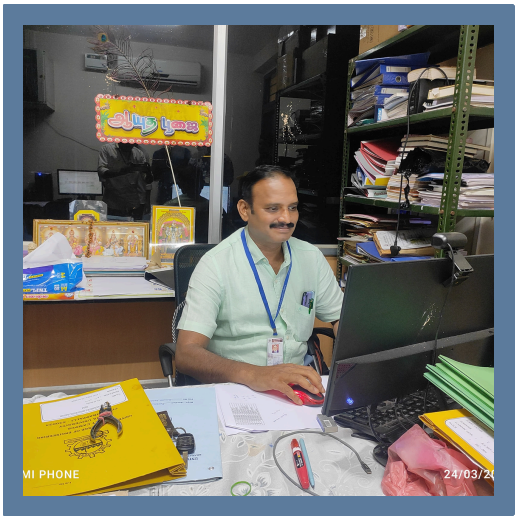
PROJECTS

Mentor – CSRC Student Project (Rs. 25,000, P-2425S0057/CSRC), "Development of K-carrageenan Composite Gel for Food Packaging Using 3D Printing," AY 2024-2025.

BOOKS PUBLISHED

Dr. E. Gomathi, Dr. Kannan Kaliappan, Mrs. Seema Verma, Dr. Rohit Kumar, "Handbook of Renewable Energy," Scientific International Publishing House, 2023, ISBN: 978-93-5757-990-2.

STAFF CORNER



DR. N . STALIN
ASSISTANT PROFESSOR

PUBLICATIONS

- Sathish, T., Ağbulut, Ü., Kumar, P. S., Mageswari, S. D. U., Stalin, N., Pandian, R., et al. (2024). Impacts of novel Calotropis gigantea seed biodiesel usage as a fuel substitute along with various metal-oxide nanoparticles on the DICI engine characteristics. Case Studies in Thermal Engineering.
- Sathish, T., Kumar, P. S., Mageswari, S. D. U., Stalin, N., Pandian, R., et al. (2024). Carbonization and gasification of cow-dung and Fe3O4 nanoparticles at different operating conditions for hydrogen production. ChemistrySelect.
- Sathish, T., Kathirvel, S., Dwivedi, Y. D., Stalin, N., Giri, J., Saravanan, R., & Makki, E. (2024). Performance enhancement by tungsten trioxide and silicon dioxide mixed nanofluids in solar collector of evacuated tube type. Case Studies in Thermal Engineering.
- Muniyandi, S., Narayanasamy, S., & Stalin, N. (2024). Experimental analysis on the performance of photovoltaic module with Al2O3 deionized water nanofluid. Thermal Science.
- Vivekanandan, R., Dr. Stalin N. (2023). Optimization of Design Parameters in Shell and Tube Heat Exchanger Using Aspen HYSYS. International Journal of Advanced Research in Science, Communication and Technology (IJARSCT).

MEMBERSHIPS

- Life Member, Indian Society for Technical Education (2016)
- Life Member, Indian Science Congress (2008)
- Member, Society of Petroleum Engineers (SPE)
- Life Member, Institution of Engineers India (IEI) (2010)

HACKATHON

- Dr. N. Stalin and his team won the Nan Mudhalvan Idea Hackathon 2.0 for their project "Power Generation Using Highway Windmills and Solar Panels," receiving ₹1,00,000 from Hon. Deputy CM Udhayanidhi Stalin.
- Dr. N. Stalin and his team were selected among 8,486 idea submissions, ranking among the top 50 winners, emphasizing the significance of renewable energy solutions in advancing research and development.

STAFF CORNER

BOOKS PUBLISHED

- Anbarasi Karunanithi & Karlmarx Karunanithi, "Total Quality Management", Ryan Publishers, 2024, ISBN: 978-81-19587-89-6.
- K. Anbarasi, G. Selvabarathi & G. Venkatesan, "Environmental Sciences and Sustainability", Suchitra Publications, Jan 2023, ISBN: 978-81-960819-1-1.

BOOK CHAPTERS

- A. Karunanithi, S. Gopal & J. Senrayan, "Emerging Treatment Techniques for Removal of Pollutants from Pharmaceutical Industry Wastewater", in Bioremediation of Dairy Industry Effluents, Cambridge Scholars Publishing, 2025.
- A. Karunanithi, S. Gopal & J. Senrayan, "A Holistic Valorization of Food Waste for Sustainable Biofuel Production", in Valorization of Wastes for Sustainable Development, Elsevier, 2023, ISBN: 978-0-323-95417-4, pp. 160.

JOURNALS

1. Here's a more concise version while keeping all essential details:
2. Anbarasi Karunanithi, "Photocatalytic Strategy to Mitigate Food Packaging Plastic Waste to Fine Chemicals & Hydrogen Production", RACEE 2025, ISBN: 978-93-48980-71-7.
3. A. Karunanithi, "Bioactive Compounds in Underutilized Fruits: Extraction & Therapeutic Properties", Indian J. Pharm. Sci. (Under Review, IF: 0.5).
4. A. Karunanithi, "Ultrasonic Hydrolysis of Waste Plantain Peels for Bioethanol Production", Period. Polytech. Chem. Eng. (Accepted, IF: 1.3).
5. Anbarasi Karunanithi, "Extraction Techniques & Betalain Yield in Nopal Fruit Peels", Indian J. Pharm. Edu. Res., 57(4), 2023. DOI: 10.5530/ijper.57.4.130 (IF: 0.501).
6. A. Karunanithi, J. Senrayan, S. Gopal, "Microwave-Assisted Bio-Oil Extraction from Bauhinia Variegata Seeds", Iran. J. Chem. Chem. Eng., 42(8), 2023. DOI: 10.30492/ijcce.2023.557038.5423 (IF: 1.903).

AWARDS & HONORS

- Chaired A Session in National Conference RACE 2025 on 7th march - Department of Petrochemical Technology, BIT Campus, Anna University, Tiruchirappalli.
- Reviewer - Iranian Journal of Chemistry and Chemical Engineering (IJCCE) – 2023 to 2025

DR. K. ANBARASI
ASSISTANT PROFESSOR

MEMBERSHIP

Life Member - IIChe (LM -57665)
Life Member - ISTE (LM – 90519)
Member – CBEES (M – 202574)
Life Member – AFSTI (LM – 72051)

SPONSORED RESEARCH

Received Rs. 1,00,000 from IIChE Faculty Research Fund for the project "Photocatalytic Strategy to Mitigate Food Packaging Plastic Waste to Fine Chemicals Integrated with Hydrogen Production" (2023-2024).

RESPONSIBILITIES

- IQAC Co-Ordinator
- 2022 - Till date
- Mechanical Operations Lab In charge
- 2010–Till Date
- Timetable Co-Ordinator
- 2016-Till Date

STAFF CORNER

DR. P . SARAVANAN
ASSISTANT PROFESSOR

PUBLICATIONS

- Soghra Nashath Omer, P. Saravanan, R. Rajeshkannan, P. Kumar, M. Reddy, M. Rajasimman, S. Venkat Kumar, "Microbial Pathways for Biohydrogen Production: Advances & Challenges", Sustainable Chemistry for the Environment, 9, 100219, 2025.
- P. Kumar, P. Saravanan, S. Nashath Omer, R. Rajeshkannan, S. Venkatkumar, "Enhanced Biohydrogen Yield via Cyanobacterial Engineering: A Review", Biomass Conversion and Biorefinery, 2025. (Impact Factor: 3.7).
- K. Ramaprabha, P. Saravanan, R. Rajeshkannan, S. Venkat Kumar, "Bio-Inspired MgO Nanoparticles from Acalypha Indica: Antibacterial & Antioxidant Study", Sustainable Chemistry One World, 5, 100048, 2025.

CONFERENCE

Coordinator for Two-Day National Conference on "Recent Advances in Chemical, Energy, and Environmental Engineering" (RACEE-25), organized by the Department of Petrochemical Technology, Anna University – UCE, BIT Campus, Tiruchirappalli, on 07th & 08th March 2025.

SEMINAR & WORKSHOP

- Faculty Development Programs (FDP) Attended:
- AICTE Training and Learning (ATAL) Academy Online FDP on Recent Progress in Process Modelling, Simulation, and Process Control at NIT Tiruchirappalli, from 06/01/2025 to 11/01/2025.
- One-Week FDP on Naan Mudhalvan – Sustainable Food Product Development, organized by Tamil Nadu Skill Development Corporation, Government of Tamil Nadu, Tiruchirappalli, from 10/02/2025 to 16/02/2025.
- Two-Week FDP supported by MeitY, Govt. of India, IIT Guwahati on Technology-Enabled Teaching, Learning, and Process Assistance for Setting Up Electronics and ICT Academics, organized by UCE, BIT Campus, Anna University, Tiruchirappalli, from 03/02/2025 to 14/02/2025.

AWARDS & RECOGNITIONS

- Elsevier reviewer recognition award 2023 Environmental Research
- Springer reviewer recognition award 2023 Biomass Conversion and Bio refineries

MEMBERSHIPS

Life Member Indian Institute of Chemical Engineers 2007-Till now KOLKATTA

BOOK EDITORSHIP

N.Stalin, P.Saravanan, J.Velmurugan “Recent Advances in Chemical Energy and Environmental Engineering” Jazym Publications, Trichirapalli. ISBN NO: 978-93-48980-71-7, 2025

STAFF CORNER

MR. J. VELMURUGAN
ASSISTANT PROFESSOR

MEMBERSHIP

Member at Indian Institute of Chemical Engineers.

CONFERENCE & SYMPOSIUM

- Conducted a two day National Conference, RAACE - 2025 (March) at University College of Engineering, BIT Campus, Trichy -24.
- Conducted a two day National level Symposium, Quimi Feria - 2024 (April) at University College of Engineering, BIT Campus, Trichy - 24.
- National level Technical Symposium Venzini Fiesta 2022 (October) in the Department of Petrochemical Technology, University College of Engineering, BIT campus, Trichy - 24.

STAFF CORNER

Machine Learning-Assisted Optimization of Fuel Oil Yield through Microwave Pyrolysis of Waste Plastics: Waste to Sustainable Wealth Approach

NANDHINI. J, ARCHANA MENON. V, and Dr. M. ARULMOZHI

DR. M. ARULMOZHI
PROFESSOR

Plastics play a crucial role in various industries, including packaging, construction, healthcare, and electronics. However, global plastic production reached 400 million metric tons in 2020, with nearly 50% of plastic waste being disposed of without recycling. Due to its high carbon content, plastic holds significant energy potential, making its improper disposal a wasted resource. Single-use plastics and slow degradation rates further contribute to environmental and human health concerns.

Pyrolysis is an effective method for plastic waste recycling, converting it into high-quality fuels and value-added chemicals while supporting a circular economy. Microwave-assisted catalytic pyrolysis is a promising alternative to conventional thermal and catalytic pyrolysis, offering:

- Rapid, uniform heating without direct contact with a heat source.
- Shorter reaction times and improved energy efficiency.
- Scalability for different plastic feedstocks.
- Higher conversion efficiency (electricity to heat reaching 60%).

Experimental Setup

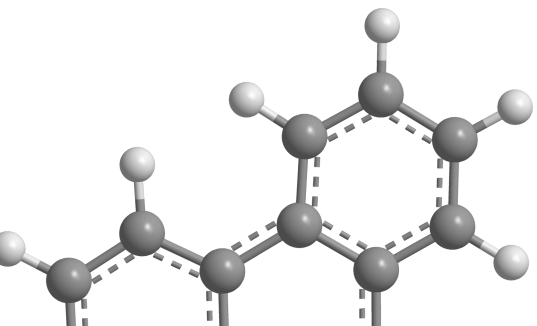
- The proposed microwave-assisted catalytic pyrolysis system consists of:
- Microwave Oven (1800W) – Modified as a pyrolysis reactor.
- Quartz Reactor & Wool Insulation – Maintains heat efficiency.
- Catalyst Bed (Quartz, Fritted Disk, Absorber) – Enhances oil yield.
- Two-Stage Condensation – Collects condensable gases into an oil collector.
- Gas Sampling System & Vacuum Pump – Prevents oxygen exposure.
- Feed plastics undergo primary pyrolysis, and vapors pass through the catalytic bed before condensation. The resulting oil is collected, while non-condensable gases are stored separately. Catalyst loading ranges from 5-20% of the feedstock weight.

Optimization through Statistical Analysis

- The study employs Response Surface Methodology (RSM) to optimize key process variables, including pyrolysis temperature, microwave power, reaction time, particle size, catalysts, and mass ratio. Using minimal experimental runs, RSM predicts the interaction effects of variables to maximize high-quality oil yield and improve energy efficiency.

Expected Outcomes

- This research contributes to economically viable waste management by converting plastic waste into valuable fuel with minimal investment. The optimized process could pave the way for sustainable energy recovery, reducing synthetic plastic waste while promoting green energy applications.



STAFF CORNER

Revolutionizing Reaction Engineering: Role of Machine Learning in Process Optimization

Chemical reaction engineering traditionally relies on empirical experiments and theoretical modeling to optimize reaction conditions and catalyst performance. However, the integration of Machine Learning (ML) is revolutionizing the field by enabling faster, more efficient, and cost-effective solutions for reaction optimization, catalyst design, and process control. ML-driven approaches such as Bayesian optimization, deep learning, and reinforcement learning are redefining how chemical engineers tackle complex reaction systems.

DR. N. JAYA
ASSOCIATE PROFESSOR

Key Machine Learning Models in Chemical Reaction Engineering

1. Bayesian Optimization for Reaction Tuning
   - Uses Gaussian processes to intelligently suggest the best experimental conditions.
   - Applied in hydrogenation reactions to maximize yield with minimal experiments.
2. Artificial Neural Networks (ANNs) for Reaction Kinetics
   - Reduces dependence on large experimental datasets and complex mathematical modeling.
   - Predicts rate constants and selectivity trends without explicit equations.
   - Used in polymerization processes to estimate molecular weight distribution.
3. Reinforcement Learning (RL) for Real-Time Process Control
   - Adapts process parameters dynamically for optimal reaction performance.
   - Applied in bioreactors to maximize enzyme activity and product yield.
4. Graph Neural Networks (GNNs) for Catalyst Design
   - Analyzes molecular structures to predict catalyst activity and stability.
   - Speeds up the discovery of heterogeneous catalysts, such as zeolites for hydrocracking.

Impact of ML in Reaction Engineering

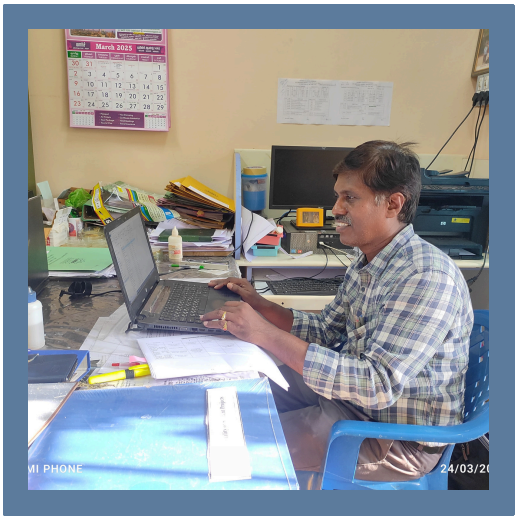
ML-powered models optimize reaction conditions, reduce experimental costs, minimize waste, and lower energy consumption. Industries are embracing ML-driven chemical process plants to drive innovation in sustainable and smart chemical engineering. Continuous research and advancements in ML will shape the future of reaction engineering, offering smarter, more efficient, and scalable solutions for industrial applications.

STAFF CORNER

Software Used in Petroleum Exploration Industry

Petroleum exploration relies on specialized software for seismic data processing, reservoir modeling, drilling optimization, and well planning. These tools enhance accuracy, efficiency, and decision-making. Below are key software solutions used in the industry:

- Schlumberger – Petrel is used for geological and geophysical modeling as well as reservoir characterization. It integrates seismic interpretation, well data, and reservoir simulation for optimized drilling and production.



DR. M. RENGASAMY
ASSISTANT PROFESSOR

- Halliburton - Landmark (DecisionSpace) is designed for geoscience and drilling workflows, serving as a unified platform for seismic interpretation, well planning, and real-time collaboration.
- CGG – GeoTeric specializes in seismic interpretation with advanced visualization, using cognitive interpretation to analyze seismic data with high-resolution imaging.
- Schlumberger – ECLIPSE is a reservoir simulation software that models fluid flow in reservoirs for production forecasting and recovery optimization.
- ION - Orca is used for seismic survey design and functions as a marine survey planning software for offshore exploration efficiency.
- Schlumberger – Techlog is utilized for petrophysical analysis and wellbore data interpretation, processing logs, core data, and image logs for formation evaluation.
- Emerson - Roxar RMS supports 3D reservoir modeling and simulation, allowing for the creation of accurate geological models for field development planning.
- Paradigm (Emerson) - SKUA-GOCAD is used for structural and geological modeling, with capabilities to model complex geological structures like faults and salt bodies.
- Schlumberger – PIPESIM is dedicated to pipeline and production system modeling, simulating oil, gas, and water flow in pipelines and facilities.
- Paradigm – SeisEarth facilitates seismic interpretation and visualization by providing 3D visualization for seismic and well data integration.
- Kongsberg – SiteCom is a real-time drilling data management tool that monitors and analyzes well operations in real time.
- Paradigm – Geolog supports well-log interpretation and petrophysical analysis, evaluating reservoir porosity, permeability, and saturation.
- Halliburton – WellPlan is used for drilling engineering and well planning, offering simulations for wellbore stability and drilling scenarios.
- Schlumberger - OFM (Oilfield Manager) focuses on production data management, monitoring field operations and reservoir performance.
- Baker Hughes – JewelSuite is a subsurface modeling and reservoir management software that creates detailed geological and reservoir models.
- Petrosys – Petrosys PRO is used for mapping and surface modeling, producing accurate subsurface geological maps.

STAFF CORNER

DR. E. GOMATHI
ASSISTANT PROFESSOR

Application of Pinch Technology in Refinery Operations

Pinch Technology

Pinch technology is a process optimization method that enhances energy efficiency by maximizing heat recovery within industrial operations. In petroleum refineries, it plays a crucial role in reducing energy consumption and operational costs.

Applications in Refineries:

- Heat Exchanger Network Optimization: Pinch analysis identifies opportunities for energy savings in crude distillation units. A study on the Port-Harcourt Refinery demonstrated a 34% reduction in annual energy usage through pinch principles.
- Hydrogen Management: Refineries require hydrogen for hydrocracking and hydro-treating. Pinch analysis optimizes hydrogen recovery, distribution, and utilization, reducing capital outlay, operating costs, and improving product quality. Hydrogen pinch analysis can yield up to 20% cost savings.
- Complex Distillation Systems: Pinch technology aids in designing optimal sequences for distillation columns, integrating side strippers and pre-fractionation columns. This can achieve energy savings of 30% and capital cost reductions of 15-20%.

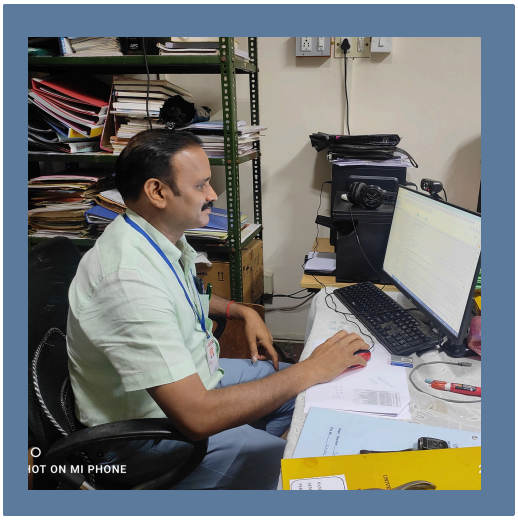
Implementing Pinch Technology:

- Energy Savings: Maximizing heat recovery reduces reliance on external utilities, leading to significant energy savings.
- Cost Reduction: Lower energy consumption enhances refinery profitability by reducing operating costs.
- Environmental Impact: Improved energy efficiency decreases greenhouse gas emissions, aligning refinery operations with sustainability goals.

In summary, pinch technology is a vital tool for refineries seeking energy efficiency, cost reduction, and minimal environmental impact. Its application spans heat exchanger networks, hydrogen management, and complex distillation processes.

STAFF CORNER

Impacts of Novel Calotropis Gigantea Seed Biodiesel with Metal-Oxide Nanoparticles on DICI Engine Characteristics



DR. N. STALIN
ASSISTANT PROFESSOR

Abstract
Calotropis gigantea, commonly known as Indian milkweed, is a widely available plant in Asia. This research evaluates its seed oil as a biodiesel source. The oil, extracted using hexane in a Soxhlet apparatus, yielded 33.3 wt%. Biodiesel was produced via transesterification and blended with diesel and nanoparticles (TiO_2, Cr_2O_3, SiO_2) to study engine performance, combustion, and emissions in a single-cylinder diesel engine under various loads. The CGSB20 + Cr_2O_3 blend showed a 31.2% increase in BTE and a BSFC of 0.33 g/kWh, outperforming CGSB20 + SiO_2 (29.2%, 0.37 g/kWh) and CGSB20 + TiO_2 (28.1%, 0.4 g/kWh). Cylinder pressure and HRR reached 77 bar and 34.2 J/CA. CGSB20 + Cr_2O_3 also improved emissions, with CO (4.5 g/kWh), NOx (725 ppm), UHC (0.11 g/kWh), and smoke (23.6%).

Introduction

- Biofuels from agricultural resources help reduce emissions, dependence on imported fuels, and costs. Biodiesel can be produced from animal fats, used oils, and plant-based feedstocks like Calotropis gigantea, a tropical plant containing 25–30.8 wt% oil. Since its oil is non-edible, it does not affect the food chain.
- Adding metal-oxide nanoparticles to biodiesel enhances engine performance and emission control. Nanoparticles improve combustion efficiency by increasing surface area and dispersion. Studies show SiO_2, Al_2O_3, and TiO_2 nanoparticles improve combustion and reduce emissions. Research using Cr_2O_3 in flaxseed biodiesel showed significant improvements in performance and combustion.

Experimental Approach

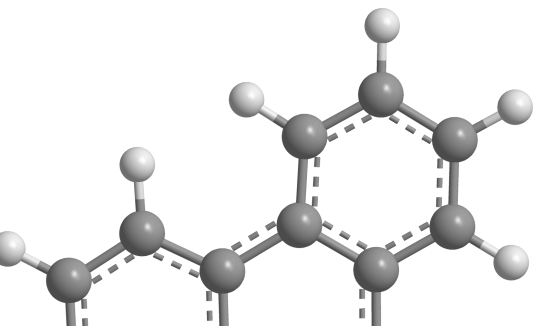
- Biodiesel was produced from Calotropis gigantea seed oil via transesterification and blended with diesel (B20). TiO_2, Cr_2O_3, and SiO_2 nanoparticles (50 mg/L) were added to test their effects. A single-cylinder diesel engine was used to evaluate:
- Performance: BTE, BSFC
- Combustion: Cylinder pressure, HRR
- Emissions: CO, NOx, UHC, smoke

Results and Discussion

- Performance: Cr_2O_3 showed the highest BTE improvement (31.2%), followed by SiO_2 (29.2%) and TiO_2 (28.1%). BSFC was lowest for CGSB20 + Cr_2O_3 (0.33 g/kWh).
- Combustion: Cylinder pressure peaked at 77 bar, with HRR reaching 34.2 J/CA.
- Emissions: CGSB20 + Cr_2O_3 had the best emission profile (CO: 4.5 g/kWh, NOx: 725 ppm, UHC: 0.11 g/kWh, smoke: 23.6%).

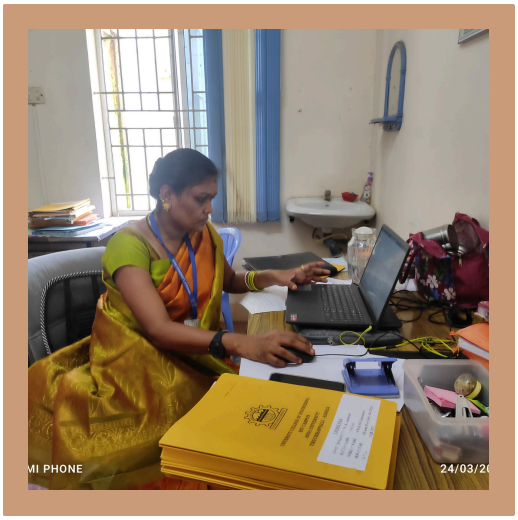
Conclusion

- Calotropis gigantea biodiesel, especially with Cr_2O_3 nanoparticles, enhances DICI engine efficiency and reduces emissions. This study highlights its potential as a sustainable alternative fuel.



STAFF CORNER

Photocatalytic Strategy for Mitigating Food Packaging Plastic Waste and Hydrogen Production



DR. K. ANBARASI
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Plastic waste is a severe global issue, taking approximately 1,000 years to degrade naturally. Many plastics, especially food-contaminated sachets, milk bottles, and plastic bags, are difficult to recycle efficiently. One promising approach to address this challenge is photocatalysis, which uses light energy to break down plastic into valuable fine chemicals and clean hydrogen. Given that plastic contains significant stored energy, repurposing it through photocatalytic degradation instead of disposal offers a sustainable alternative. Hydrogen produced in this process can be utilized as a clean energy source, already being employed in small electric cars and planes.

- While photocatalysis has demonstrated potential in laboratory settings, several technological barriers must be overcome for large-scale implementation:
- Efficiency: The success of photocatalytic degradation depends on factors like catalyst type, light intensity, and plastic concentration. Developing more efficient photocatalysts can enhance reaction rates and energy utilization.
- Reactor Design: Effective degradation requires optimal interaction between the photocatalyst and plastic while minimizing energy loss. Innovations in reactor design can significantly improve performance.
- Selectivity: Photocatalysts often react with other organic or inorganic compounds, affecting process efficiency. Enhancing selectivity can prevent unwanted byproducts and improve the overall effectiveness of plastic breakdown.
- Scalability: Moving from laboratory experiments to industrial-scale applications presents challenges, including balancing efficiency, cost, and environmental impact.
- Stability: Photocatalysts degrade over time, reducing their long-term effectiveness. Developing more durable materials can ensure consistent performance in real-world applications.
- Addressing these challenges can make photocatalysis a viable, scalable solution for mitigating plastic waste while enabling clean hydrogen production. With continuous advancements, this approach can contribute significantly to sustainable waste management and renewable energy generation.

STUDENT WRITE-UPS

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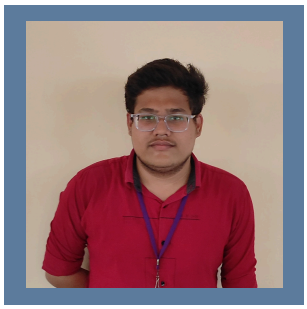

AI Agents: Your Autonomous Digital Teammates

What is an AI Agent?

An AI agent is a software program that perceives its environment, makes decisions, and takes actions to achieve specific goals. Unlike traditional programs that follow fixed instructions, AI agents operate autonomously, adapt to changes, and learn from experiences.

How Do They Work?

AI agents consist of:

- Perception: Using sensors (cameras, microphones, or data feeds) to gather information.
- Decision-Making: Processing data with AI algorithms to determine the best action.
- Action: Executing actions, such as controlling robots, displaying information, or making API calls.
- Learning: Improving performance over time by learning from data and feedback.

Types of AI Agents

1. Simple Reflex Agents: Act based on current conditions (e.g., thermostats).
2. Model-Based Reflex Agents: Track changes in the environment (e.g., self-driving cars).
3. Goal-Based Agents: Plan actions to achieve specific goals (e.g., navigation systems).
4. Utility-Based Agents: Maximize desired outcomes (e.g., recommendation systems).
5. Learning Agents: Improve over time through learning (e.g., AI chatbots).

Examples of AI Agents in Action

- Virtual Assistants: Siri, Google Assistant, and Alexa handle tasks like answering queries and controlling smart devices.
- Chatbots: Provide customer support and guide users through processes.
- Self-Driving Cars: Navigate, avoid obstacles, and make driving decisions.
- Robotics: Automate tasks in manufacturing, logistics, and healthcare.
- Recommendation Systems: Suggest products, movies, or music based on preferences.
- Autonomous Trading Systems: Execute trades in financial markets using AI.
- Personalized Medicine: Analyze patient data to recommend treatments.

The Future of AI Agents

Advancements in deep learning, NLP, and robotics will enable AI agents to:

- Collaborate seamlessly with humans.
- Handle complex tasks with minimal supervision.
- Adapt to dynamic and unpredictable environments.
- Exhibit greater general intelligence and problem-solving skills.

Conclusion

AI agents are transforming industries by automating tasks and enhancing decision-making. As technology advances, understanding AI agents' potential will be crucial for businesses and individuals alike.

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4th Year

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INDIA'S PLEDGE TO BUY MORE U.S. OIL: WHAT IT MEANS FOR GLOBAL ENERGY

WHY HAS INDIA PROMISED TO BUY MORE U.S. OIL?

India and the U.S. are strengthening trade ties, particularly in energy. To reduce the trade deficit, India plans to increase its imports of U.S. crude oil, LNG, and coal. In 2018-19, India imported $3.5 billion worth of U.S. crude, with expectations to rise to $5-6 billion. Indian oil companies are negotiating to import 8-10 million tonnes in 2019-20, aligning with the goal of doubling bilateral trade to $500 billion by 2030.

WHY IS INDIA LOOKING TO DIVERSIFY ITS CRUDE SUPPLY?

India, the world's third-largest oil consumer, imports over 80% of its crude, mainly from the Middle East. Geopolitical tensions, such as attacks on Saudi Aramco's facilities, highlight supply risks and price volatility. To mitigate these risks, India is exploring alternative suppliers, including the U.S. and Russia, ensuring long-term energy security.

IMPLICATIONS FOR INDIA'S ENERGY LANDSCAPE

Expanding U.S. and Russian imports enhances India's energy security and economic stability. While U.S. shale oil imports remain small, Washington aims to be a key energy partner. India is also investing in Russian oil and gas fields, adopting a multi-pronged approach to secure its energy needs.

KEY DETAILS:

- Current Imports: India imported $3.5 billion of U.S. crude in 2018-19, with plans to increase to $5-6 billion and 8-10 million tonnes.
- Domestic Production Gap: India's rising demand outpaces domestic production, necessitating foreign imports.
- Future Outlook: India's 2019-20 petroleum imports are projected at 234.26 million tonnes, with long-term U.S. LNG contracts under discussion.

RUSSIA'S ROLE IN INDIA'S ENERGY MIX

- Smaller Volumes: Russia's oil and gas exports to India remain lower than Middle Eastern supplies.
- Strategic Investments: Indian companies are investing in Russian upstream projects to ensure a diversified energy portfolio.

POLICY DIRECTIONS FOR ENERGY SECURITY

1. Strategic Reserves: Maintaining petroleum reserves for emergencies.
2. Domestic Exploration: Encouraging local oil and gas production.
3. Overseas Ventures: Investing in foreign oil and gas assets.
4. Renewables & Clean Fuels: Expanding green energy initiatives.

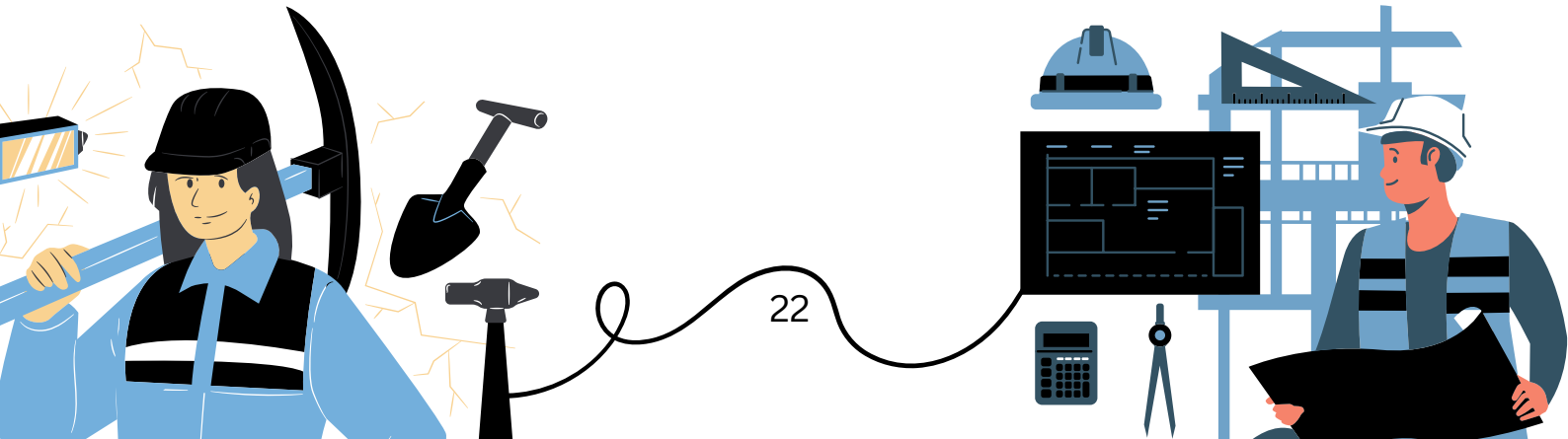
CONCLUSION

India's decision to buy more U.S. oil reshapes its import strategy while strengthening U.S.-India ties. This move reduces dependence on Middle Eastern supplies and enhances energy security. As India's economy grows, securing a stable and diversified energy supply remains a top priority.

EVENTS

CLASS COMMITTEE MEETING

The Class Committee Meeting of the Department of Petrochemical Technology was organized by university professors to gather student feedback on academics and learning experiences. It provided a platform for students to share concerns and suggestions regarding coursework, teaching methods, and lab facilities. Faculty members addressed issues and considered feedback to enhance academic strategies and improve the learning environment.



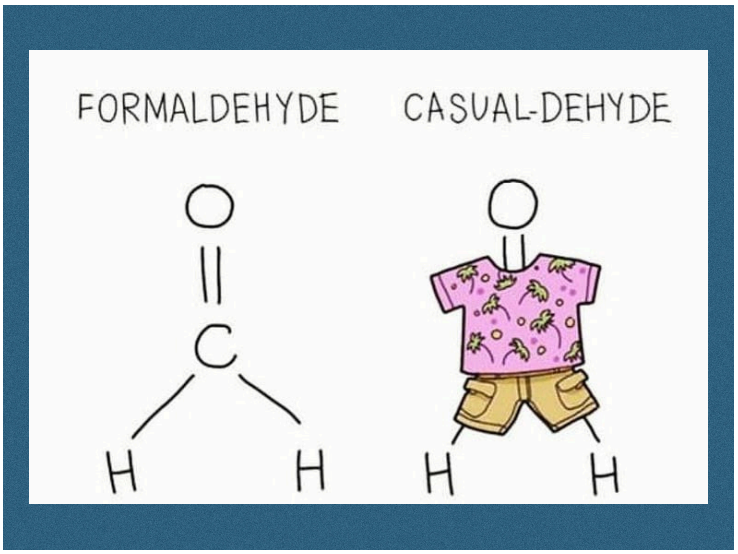
EXPERT LECTURE

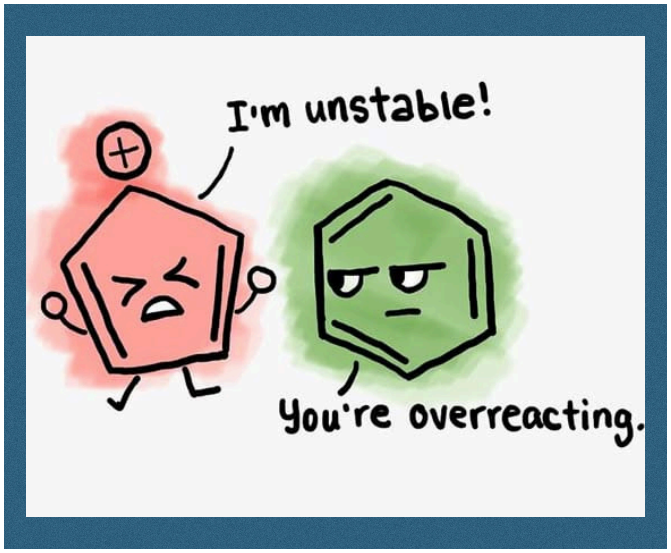
Expert lecture is held on 2nd March 2023 in department of Petrochemical technology .These lectures are delivered by professionals, Academician or expert who have significant experience in this field which helps students acknowledge about Real-Wotld exposure

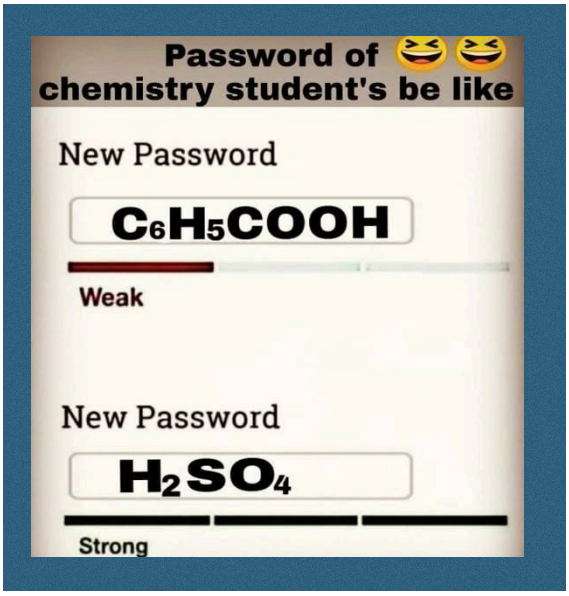
INTERACTION WITH PKIET STUDENTS

On 10th january 2024 , the event conducted by department of Petrochemical technology about the interaction with PKIET students. The event helps the students to acknowledge about career Guidance, Motivation and inspiration related to their interest of different field

FUNS AND FACTS







NBA MOCK AUDIT

NBA mock audit held on 5th October 2023 in department of Petrochemical technology. It helps the university and college to meet the academic and institutional standards . It also recognising and evaluating institutions , programs and qualifications for National and International credibility

GRADUATION CELEBRATION

Alumini meet held on . In department of Petrochemical technology. It connecting them with former graduates who have gained professional experience. The event helps current students to gain insight, membership and networking opportunities, ultimately enhancing their career prospects.

QUIMI FERIA SYMPOSIUM ‘24

The Quimi Feria National Level Technical Symposium, organized by the Department of Petrochemical Technology, brought together students from various colleges and universities to showcase their research through paper presentations. Professors facilitated the event, providing a platform for students to present innovative ideas and advancements in petrochemical technology. The symposium encouraged knowledge exchange, technical discussions, and academic networking, fostering a collaborative learning environment for aspiring engineers and researchers.

RACEE 2025

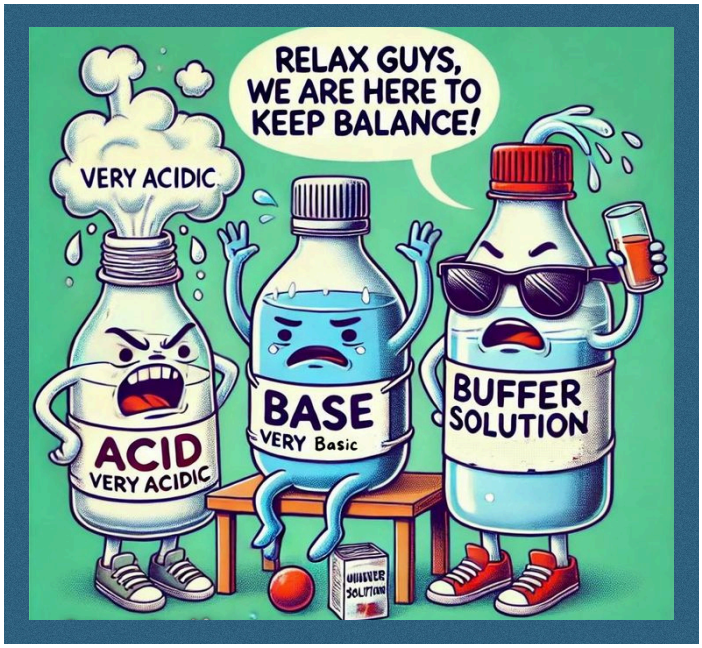
K. Karthika
S. Aseena Fathima
A. Arul Selvan

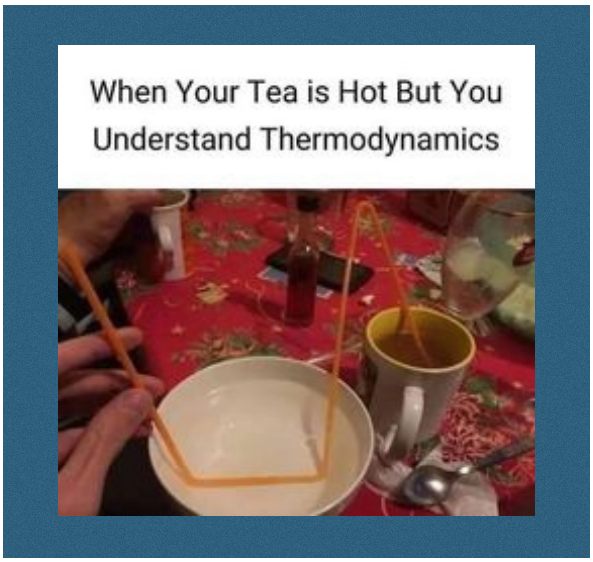
2nd Year

S. Anbu chelvan
S. kishoth
J. Reshma
K. Harini Lakshmi

The National Conference on Recent Advances in Chemical, Energy, and Environmental Engineering (RACEE 2025) is a prestigious two-day event organized by the Department of Petrochemical Technology (NBA Accredited) in collaboration with the SPE Student Chapter at University College of Engineering, BIT Campus, Anna University, Tiruchirappalli. Scheduled to take place on 7th and 8th March 2025, the conference aims to bring together researchers, academicians, industry professionals, and students to discuss and share advancements in the fields of chemical, energy, and environmental engineering.

FUNS AND FACTS

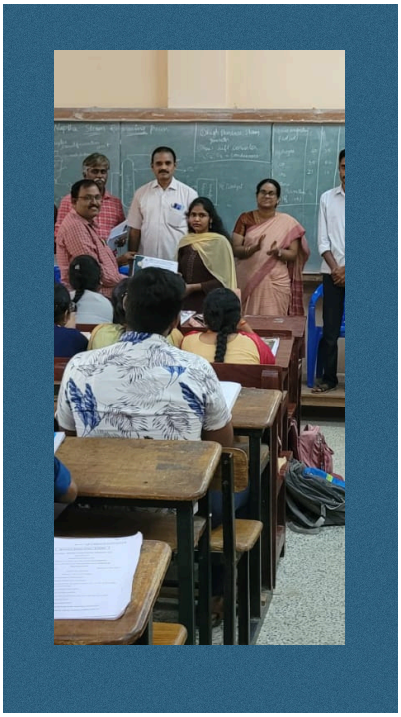




ALUMINI MEET

The Alumni Meet provided a wonderful platform for former students to reconnect with their peers, professors, and alma mater. It was a memorable event where alumni shared their career journeys, industry experiences, and insights with current students, offering valuable guidance for their professional growth. The meet fostered networking opportunities, strengthening the bond between alumni and the institution. Their success stories served as motivation for aspiring engineers, while their feedback contributed to the continuous improvement of academic programs. The event celebrated the achievements of our graduates and reinforced the lasting relationship between the institution and its alumni.

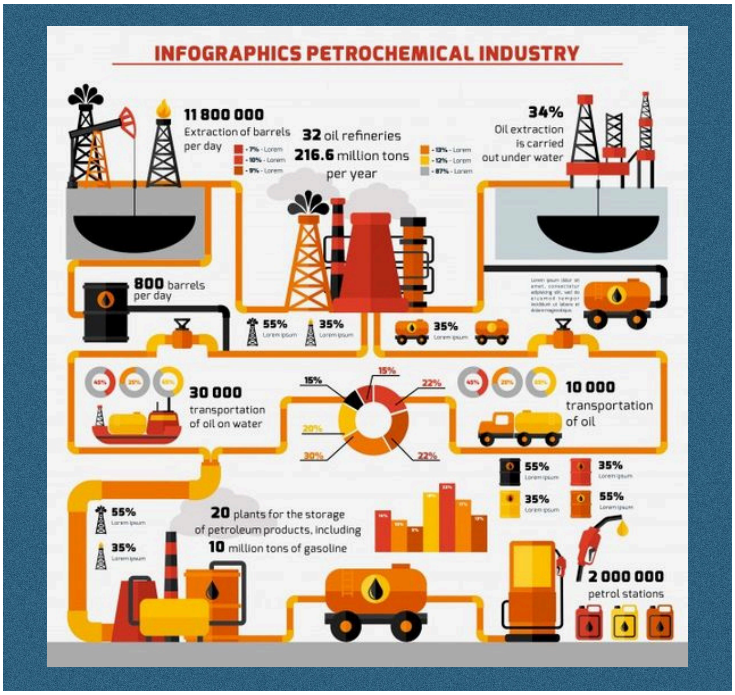
APPRECIATION FOR REPRESENTATIVES

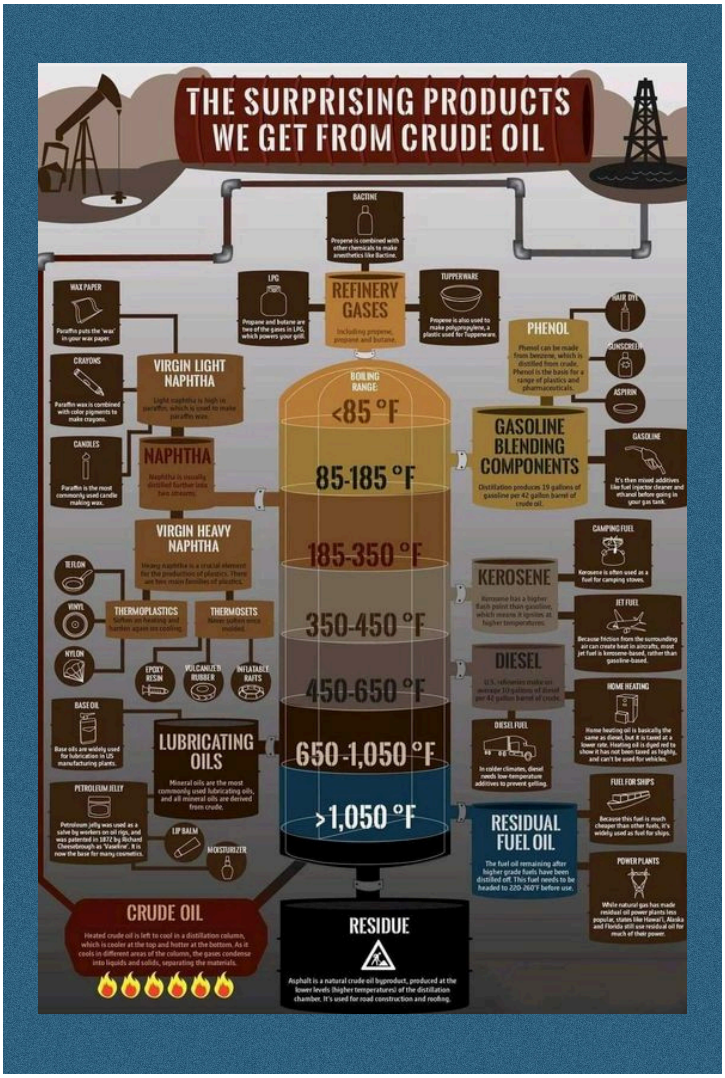


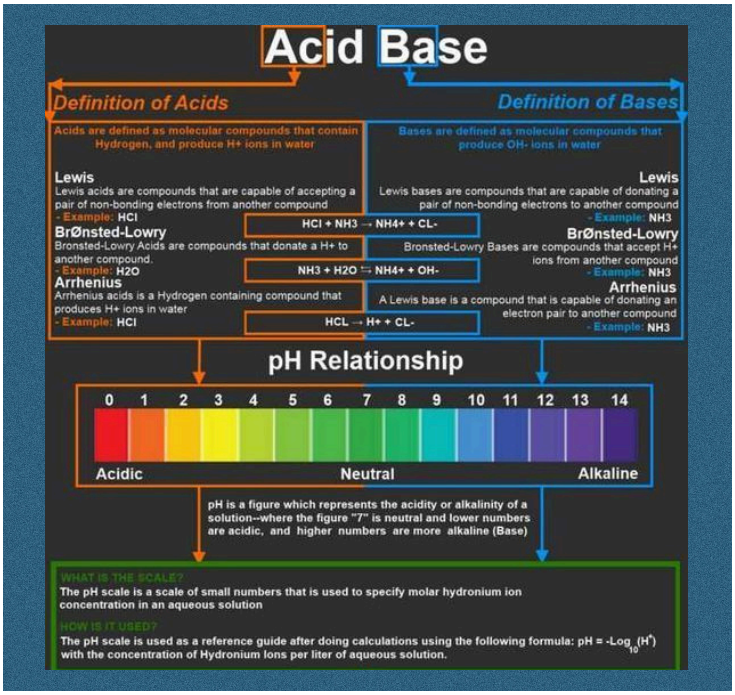
EXPERT LECTURE

An Industrial Expert Lecture by **Mr. Rajesh Khannan B** (Kuwait) and **Mr. Kathiravan A** (IOCL) provided valuable insights into the petrochemical and refining industries. They discussed industry trends, process advancements, and career opportunities, enhancing students' technical knowledge. The session bridged academics with real-world applications, inspiring future engineers.

LEARN WITH US







INDUSTRIAL VISIT

The final-year students embarked on an industrial visit to FACT, Kerala, gaining firsthand exposure to fertilizer and chemical manufacturing processes. They explored various plant operations, safety protocols, and advanced technologies used in the industry. The visit provided valuable practical insights, bridging the gap between theoretical knowledge and real-world applications, enriching their learning experience.

SOCIAL JUSTICE DAY

Social Justice Day is observed to promote equality, fairness, and human rights, ensuring that every individual, regardless of background, has access to opportunities and justice. It highlights critical issues such as poverty, discrimination, and social exclusion, encouraging collective efforts to build an inclusive society. Educational institutions, organizations, and governments use this day to raise awareness, implement policies, and support marginalized communities. In observance of this day, our college students took a pledge to uphold the values of social justice, stand against discrimination, and contribute to a more inclusive and equitable society. This initiative reflects our commitment to fostering a just and fair environment for all.

PLACEMENT TRAINING

The 3rd-year students are actively undergoing placement training, organized by our university's placement cell in collaboration with Cognizant. The training program focuses on enhancing technical skills, aptitude, communication, and interview preparedness, equipping students with the competencies required for the corporate world. Through expert-led sessions, mock interviews, and hands-on problem-solving exercises, students gain valuable insights into industry expectations. This initiative aims to boost their confidence and readiness for upcoming placement opportunities, ensuring a strong foundation for their professional careers.

LEARN WITH US

Oil rig

Filling a car's fuel tank is easy, but extracting oil from which to make the fuel is extremely difficult. To understand the challenge of drilling for oil, think about standing at the top of a 6½-ft (2-m) step ladder. Most of the ladder is underwater. Now drill a hole the width of a pencil in the ground beneath the ladder. You need a very long drill, because the hole is 98 ft (30 m) deep. Sounds difficult? Drilling for oil at sea is much harder.

Much of the world's oil is buried under the sea. Giant oil production platforms may be more than 705 ft (215 m) high, but only a quarter shows above the waves. The rest is a strong frame anchored to the sea bed. The platform supports the rig—the apparatus that drills down to the oil, as well as storage tanks, pumps, and living quarters for the workers, who live on the rig for 2 weeks at a time.

Drilling for Oil

The part of the platform that drills down to reach the oil reserves is called the rig. The rig's motor turns a rotary table, which then turns a long shaft, called the drill string, which has a drill bit on the end. The drill bit has hard teeth which cut through the rock below. As the shaft gets deeper, the drillers add on 29-ft (9-m) long pieces of pipe. The most visible part of the entire oil platform, called the derrick, is 196 ft (60 m) high and supports the winch and crane, which hold up the drill string. The drill string may weigh hundreds of tons, and the crane must be powerful enough to pull the entire string from the shaft.

As drilling progresses, a mix of chemicals called mud is pumped down the drill string to keep the drill bit cool and bring rocks to the surface. The mud pipe then carries the mud back to the platform.

The mud is filtered and pumped back down the drill string.

When a drill strikes oil, the shaft becomes a producing well. An arrangement of valves called a Christmas tree is fitted to the top of the shaft and regulates the flow of oil from the well. A single production platform may have as many as 30–40 wells.

If a drill bit strikes oil or gas under pressure, there can be a blow-out—oil or gas rushes up the drill pipe and gushes out. A device called a blow-out preventer guards against this.

Around the clock
Kitchens on the rig stay open day and night. Oil production is continuous, and there are people working at the time.

Accommodation block
More than 100 workers live on the rig. It is home for 2 weeks at a time, so everything they need for work and recreation is supplied.

Helicopter landing pad
Workers and supplies arrive by helicopter. In very bad weather, ships cannot reach the platform, and the helicopter is the only link to the mainland.

Control room
All the operations of the platform can be monitored and managed from here. Computers help control the flow of gas and oil.

Gas
Most wells produce gas as well as oil. Gas is used in the platform's power plant.

Loading bay
A crane unloads supplies from a small ship when the weather is calm enough for the ship to safely sail close to the platform.

Roughnecks
The team of workers who operate the drilling rig are called roughnecks.

Movie theater
Boredom is a big problem for offshore workers, but a movie theater breaks up the monotony.

Power station
The platform uses electricity for powering systems such as heating and lighting and also for pumping gas and oil ashore.

Lifeboat
This lifeboat can be lowered into the water. Other types of lifeboats slide down ramps for a quick escape.

Firm support
Strong steel girders support the decks of the platform.

Scuba divers
Close to the surface, divers use self-contained underwater breathing apparatus (SCUBA) to check the rig.

Piles
The rig rests on piles—strong foundations sunk into the sea bed.

Deep-sea divers
At great depths, the pressure of the sea makes scuba diving impossible, so divers wear pressurized suits.

Standby vessel
In an emergency, a fire-fighting ship can spray a burning rig with water and rescue survivors.

Diving platform
Just above sea level, there are platforms where divers can prepare to dive. Most divers, however, dive from ships called diving support vessels (DSVs).

Steel jacket
This production platform stands on a huge steel structure called a jacket, which rests on the sea bed.

Miniature submarines
At depths below 1,300 ft (1,000 m), only midget submarines are strong enough to withstand the water pressure.

Intelligent pig
To inspect the pipeline, the oil workers send an intelligent pig along it. This is a robot that examines the pipe walls for damage and records what it finds on magnetic tape.

Tanker

If a production platform is not connected by pipeline to the shore, a tanker takes the oil away. The tanker is too big to get close to the platform, so oil is pumped along a short pipeline to a loading buoy, where the tanker is filled.

Oil tanks
The largest tankers can hold as much as 220,461 tons (200,000 tonnes) of oil.

Mooring head
The tanker swings around its mooring point as it catches the wind, so the mooring head must turn freely.

Moving column
A rigid column might snap, so it is made in sections that can move freely.

KEY FACTS

Jacket base weight	37,918 tons (34,400 tonnes)
Jacket base size	370 ft (85 m) x 370 ft (85 m)
Height of jacket	695 ft (212 m)
Piles used	802 tons (800 tonnes)
Weight of topside modules	34,171 tons (31,000 tonnes)
Total height from sea bed	1,023 ft (312 m)
Drilled well depth	up to 17,060 ft (5,200 m)
Accommodation	100–200

ALUMNI TALKS

MR.SATHISH

2018 - 2021

After graduating, my journey in the industry began with a Graduate Engineering Training (GET) program at Tagros Chemicals, where I gained hands-on experience in plant operations and process control over a year. Following this, I received a contract opportunity from CPCL, where I worked at the Distributed Control System (DCS), enhancing my technical skills in real-time process monitoring and automation. My career then took a new turn as I moved to Dubai, where I am currently working as an Analyst at Bureau Veritas, contributing to quality assurance and compliance in the petrochemical sector. This journey has been a continuous learning experience, shaping my expertise and career growth in the industry.

STUDENTS CORNER

Our students, **A. R. Harini**, **T. Karl Markx**, and **S. Balakumar**, were awarded for their outstanding academic performance in Petrochemical Technology. Their dedication and excellence set a benchmark for academic success, inspiring peers. This recognition reflects both their hard work and the high standards of our institution.

STUDENTS CORNER

IBM - NM GRAND HACKATHON

On 21 November 2024 our talented third-year petrochemical students — **A. Charles**, **U. Syed Luqmaan**, **M. Robin Durai**, **P. M. Naveen**, and **R. Vignesh Kumar** — have been awarded a cash prize in the NAAN MUDHALVAN Hackathon organized by the Government of Tamil Nadu.

ENCON FEST (TCL)

On December 5, 2023, our talented third-year Petrochemical students, **E. Jeevaprabhu** and **P. Saranjay**, won first prize in a paper presentation competition organized by Thirumalai Chemicals Ltd.

INTRESTING FACTS

The first commercial oil well was drilled in 1859 by Edwin Drake in Pennsylvania, USA

The largest crude oil producer in the world is the USA, followed by Saudi Arabia and Russia.

The oldest known oil well, drilled in 347 AD in China, was used to extract salt brine.

The biggest crude oil reserves are in Venezuela, with over 303 billion barrels.

STUDENTS CORNER

G. Deepakkumar, a 3rd-year student, secured 3rd place in football (Alumni Trophy) at K. Ramakrishna College of Engineering. His dedication and teamwork showcased his sporting excellence, bringing pride to our institution.

E. Jeevaprabhu, a 3rd-year student, is proudly representing for Anna University in all India Inter University Netball tournament held at (SGVU) Jaipur. His dedication and skills highlight his excellence in the sport, bringing recognition to our institution.

M. S. Dharshan showcased his cricketing skills in the ANNA UNIVERSITY ZONE 13 SPORTS - CRICKET 2024, leading his team to runners-up position. His dedication and performance brought pride to our institution.

STUDENTS CORNER

On Health Day, students enthusiastically participated in a marathon to promote fitness and well-being. The event encouraged a healthy lifestyle, teamwork, and endurance while raising awareness about the importance of regular exercise. With great energy and determination, participants showcased their commitment to physical and mental wellness.

Our 3rd-year Petrochemical Technology students proudly participated in the march past on University Sports Day, displaying discipline, unity, and team spirit. Their synchronized performance reflected their dedication and enthusiasm, adding grandeur to the event.

AUBIT Cricket Club

AUBIT Badminton Club

- The ANNA UNIVERSITY ZONE 13 SPORTS - CRICKET 2024 team showcased outstanding performance, securing the Runners-Up position with remarkable dedication and teamwork. Their hard work and commitment brought pride to UCE BIT Campus, highlighting their excellence in the sport.

- Meanwhile, **Riyas Mohammad**, a second-year student, made a significant mark by leading his team to victory in Ball Badminton, emerging as winners in the Anna University Zone 13 Sports. His exceptional skills and determination contributed to this remarkable achievement, bringing honor to the institution.

INTRESTING FACTS

The first diesel engine was invented by Rudolf Diesel in 1897.

The first diesel engine was invented by Rudolf Diesel in 1897.

Biodiesel (B100, B20, B5) is a renewable diesel alternative made from vegetable oils or animal fats.

STUDENTS CORNER

On Independence Day, the NCC cadets proudly participated in a parade, showcasing discipline, patriotism, and leadership. Marching in perfect synchronization, they honored the nation's freedom and the sacrifices of our heroes. The event inspired students with a sense of duty and national pride, making the celebration truly memorable.

STUDENTS CORNER

AUBIT Hockey Club

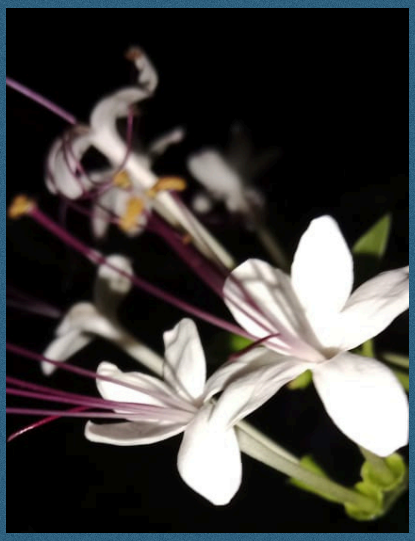
C. PRAVEEN
3RD YEAR

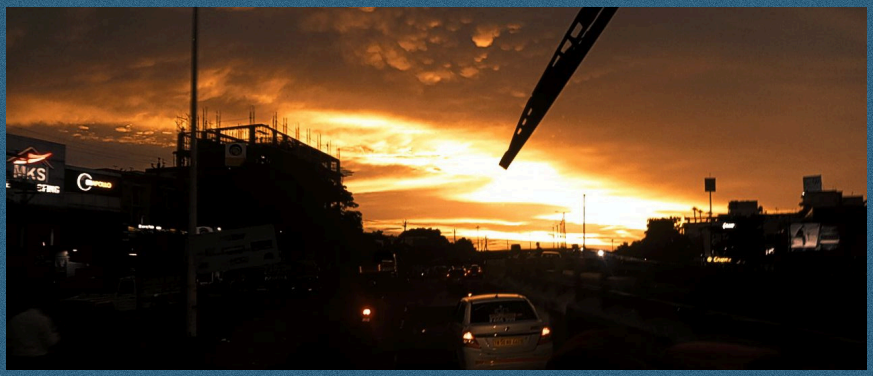
The Zone 13 hockey players (**C. Praveen, A. Austin Christopher**), of UCE BIT Campus proudly received their prize, celebrating their outstanding achievement alongside the Dean of the university and faculty members. Their unwavering dedication, teamwork, and sportsmanship were instrumental in securing this victory, bringing immense pride to the institution. The recognition not only honors their hard work but also serves as inspiration for future athletes. This achievement highlights the strong sports culture at UCE BIT Campus, encouraging students to strive for excellence in both academics and extracurricular activities.

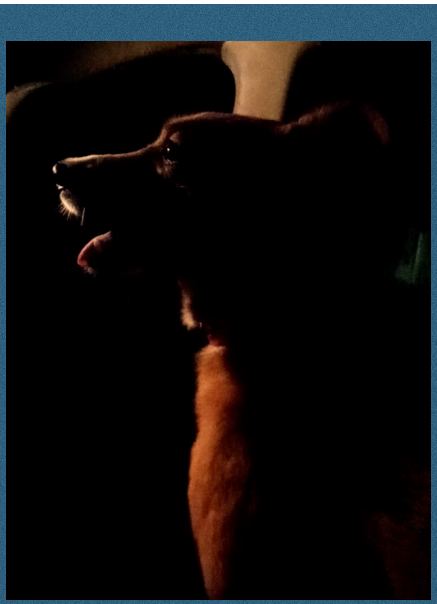
STUDENTS CORNER

The sports players of UCE BIT Campus proudly stood alongside the Dean of the university and the staff of the Petrochemical Technology Department during the University Annual Day celebration. Their remarkable achievements in various sports were recognized, honoring their dedication, teamwork, and perseverance. The event served as a platform to appreciate their hard work, motivating them to strive for even greater success. The presence of faculty and university officials further emphasized the importance of sports in holistic student development. This celebration not only acknowledged their victories but also encouraged a spirit of sportsmanship and excellence among all students.

STUDENTS CORNER

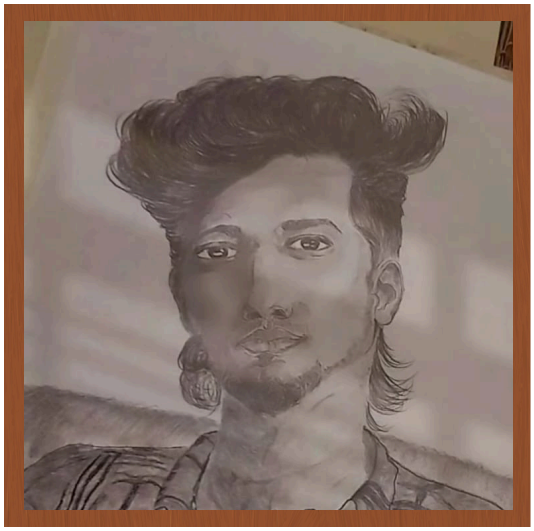


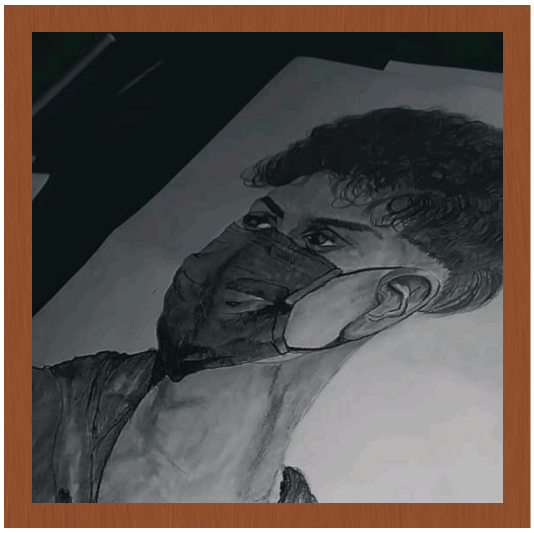




MS. G. K. KEERTHANA
4TH YEAR

STUDENTS CORNER





MR. M. CHANDRABALAN
3RD YEAR

INTRESTING FACTS

The first oil boom occurred in Pennsylvania, USA, in 1859, when Edwin Drake drilled the first commercial oil well.

The largest conventional oil field in the world is Ghawar Field in Saudi Arabia, with an estimated 75–83 billion barrels of oil.

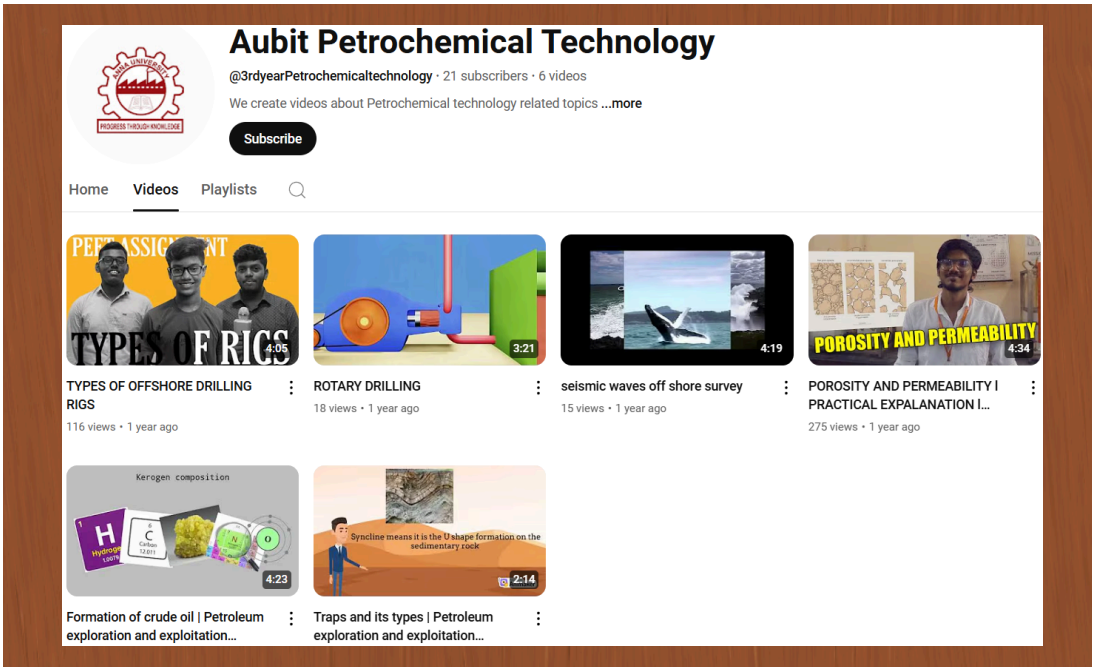
The term "petrol" for refined fuel was first used in 1892, while the term "gas" for gasoline was first recorded in American English in 1905.

STUDENTS CORNER

MR. Y. RUPACHANDIRAN
4TH YEAR

https://youtube.com/@3rdyearPetrochemicaltechnology?feature=shared

YOUTUBE HANDLE



STUDENTS CORNER

MR. J. DHANVEER MOHAMED
4TH YEAR
Web developer and designer

https://aubitpetrochemicals.weebly.com

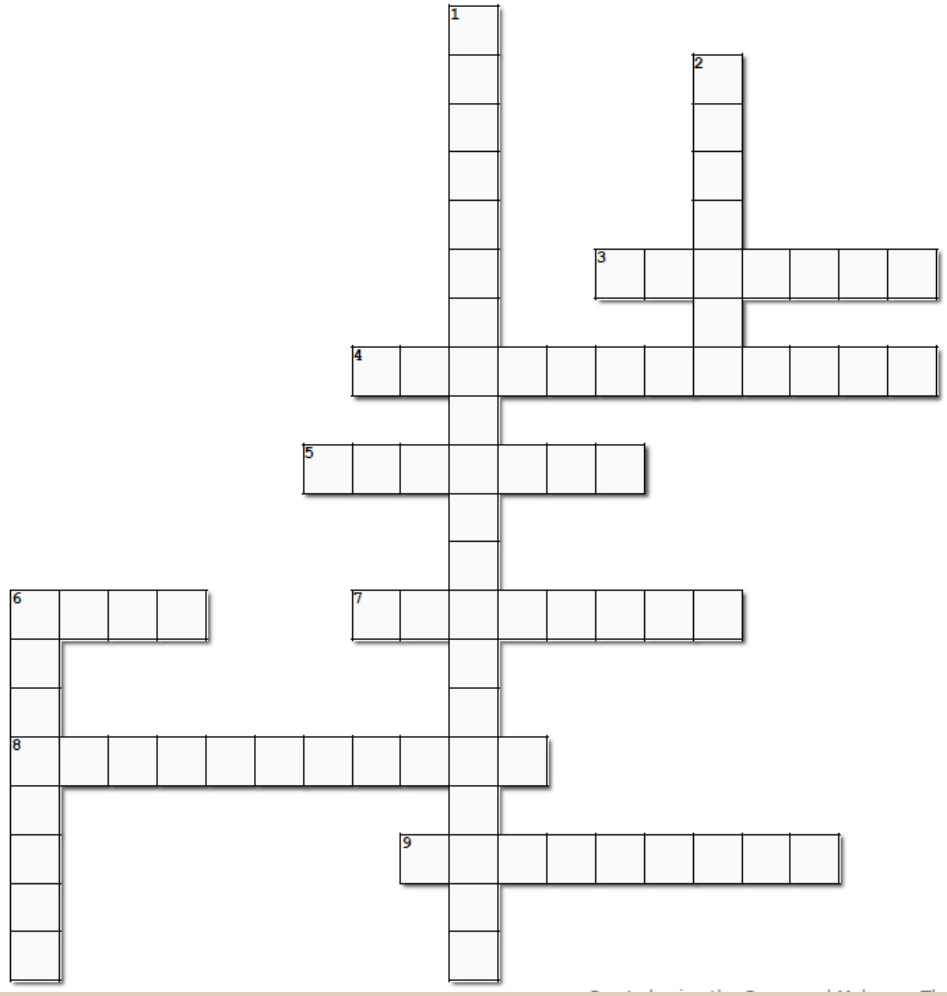
WEBSITE

MR. M. LOGESH RAJA
4TH YEAR

https://youtube.com/@176pv25?si=wgUFXVB6ps4lkdIB
YOUTUBE HANDLE

https://www.instagram.com/thirai._.ulagam?igsh=YWcwc3NiczVhMmV3
INSTAGRAM HANDLE

CHEMICAL CROSSWORDS



ACROSS

3.THE MOST ABUNDANT HYDROCARBON IN NATURAL GAS.THEMOST ABUNDANT HYDROCARBON IN NATURAL GAS.

4.A PROCESS OF SEPARATING A MIXTURE INTO ITSCOMPONENTS BASED ON BOILING POINTS.

5.A CATALYST USED IN THE CRACKING OF HYDROCARBONS.

6.A TYPE OF REACTOR WHERE REACTANTS ARE CONTINUOUSLYADDED, AND PRODUCTS ARE REMOVED.

7.A PETROLEUM FRACTION USED AS JET FUEL.

8.A TYPE OF PUMP COMMONLY USED IN REFINERIES ANDCHEMICAL PLANTS.

9.A PROPERTY THAT MEASURES A FLUID'S RESISTANCE TOFLOW.

DOWN

1.A PROCESS THAT REMOVES SULFUR FROM PETROLEUMPRODUCTS.

2.THE PRIMARY FEEDSTOCK FOR MAKING PLASTICS, OBTAINEDFROM CRUDE OIL.

6.THE PROCESS OF CONVERTING HEAVY HYDROCARBONS INTOLIGHTER FUELS.

GUESS THE SIGNS

GUESS THE SIGNS

1. RADIATION HAZARD
2. HIGH VOLTAGE
3. WARNING
4. BIOHAZARD
5. STRONG MAGNETIC FIELD
6. NON - IONIZING RADIATION
7. TOXIC
8. FLAMMABLE MATERIALS
9. OPTICAL RADIATION

CHEMICAL CROSSWORDS

ACROSS

3. METHANE
4. DISTILLATION
5. ZEOLITE
6. CSTR
7. KEROSENE
8. CENTRIFUGAL
9. VISCOSITY

DOWN

1. HYDRODESULFURISATION
2. NAPHTHA
3. CRACKING

MEET THE TEAM

Faculty Incharge

Dr. M. Rengasamy

Crew Members

C. P. Annie Evangelien

G. K. Keerthana

U. Syed Luqmaan

A. R. Harini

A. Mohamed Sabiullah

K. Karthika

M. S. Dharshan