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RGUKT/Acad/NB-Hub/2025 Date: 06/10/2025

CIRCULAR

Sub: RGUKT - Academic Section – Invitation for New Generation Ideation Contest – 2025 Information Communicating -Reg.

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Dear Students,

This is to inform you that The HPCL Green R&D Centre, is organizing the 7 "New Generation Ideation Contest (NGIC-2025), as a part of its endeavor to provide a platform for innovative and groundbreaking ideas. An abundance of innovative ideas was received from across the country, and the event culminated in several of those ideas being recognized and rewarded.

Keeping with its proud tradition, the contest aims to inspire researchers to provide creative, out of the bor solutions to the world's pressing energy and environmental challenges in the light of rapidly changing technological, digital & socio-economic landscape. Further details of the contest and idea submission is facilitated through HPCL corporate

Last Date of Idea Submission is 31st October, 2025.

For More Details:

Website: https://ngic hindustanpetroleum.com/

https://ngic.hindustanpetroleum.com/idea-submission.aspx

Sd/-
Associate Dean
Academics & Planning

HP GREEN R&D CENTRE

New GENERATION IDEATION CONTEST 2025

CLICK HERE
TO SUBMIT YOUR IDEAS

Delivering Happiness

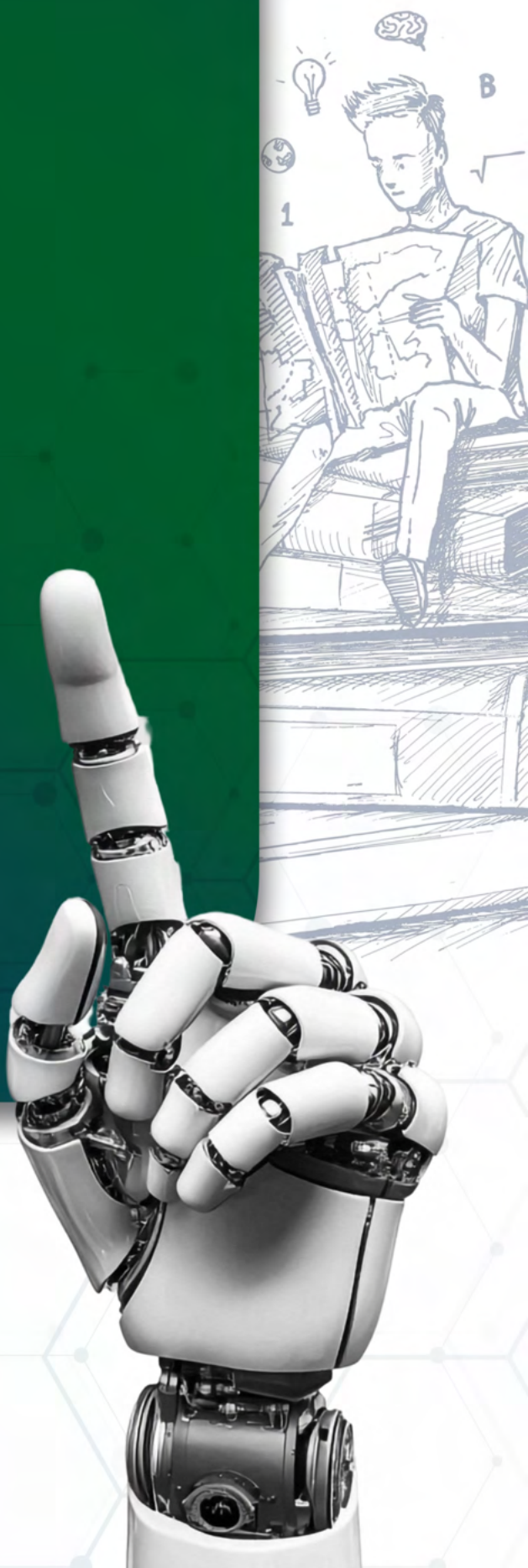
About the NGIC-2025

HP Green R&D Centre embarked on an innovation drive in 2019 with the objective to encourage researchers in India to come up with new and innovative ideas to address modern world challenges such as rising energy demands, environmental pollution and growing consumerism.

To support this initiative, HPCL is organizing the "New Generation Ideation Contest" providing a golden platform for young researchers to share their innovative solutions for the upcoming challenges.

The fifth edition of the contest was launched in 2024. Three entries were selected as winners in the Undergraduate Category, and five entries in the Open Category; five ideas were awarded commendation prizes. In 2025, HP Green R&D Centre is all set to launch the sixth edition of the innovation drive - New Generation Ideation Contest 2025.

In this edition also, various innovative ideas are welcomed from researchers, scholars from across the country in the 6 Themes: Sustainability and Circular Economy, AI Powered Digitalization, New and Green Energy, Carbon Capture and Conversion Technologies, Novel Functional Materials, Refining Technologies & Petrochemical Production.



हिन्दुस्तान पेट्रोलियम
HP

HP GREEN R&D CENTRE

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New GENERATION IDEATION CONTEST 2025

HPCL

Hindustan Petroleum Corporation Limited (HPCL) is a Maharatna CPSE Company with Annual Gross Sales of about Rs. 4,66,345 Crore during FY 2024-25. HPCL has a strong presence in the Refining & Marketing of Petroleum Products in the country. HPCL owns and operates Refineries at Mumbai & Visakhapatnam with design capacities of 9.5 MMTPA & 15 MMTPA respectively. HP Green R&D Centre at Bengaluru is a state-of-the-art research facility for driving innovation in HPCL.

HPCL also owns the largest Lube Refinery in the country at Mumbai for producing Lube Oil Base Stock with a 764 Thousand Metric Tonnes Per Annum (TMTPA) capacity. HMEL & MRPL are JVs of HPCL which add to the refining capacity of HPCL portfolio. HPCL, through its subsidiary Prize Petroleum Company Ltd., owns 7 E&P blocks. Overall, HPCL is a strong player in the field of Refining, Lube marketing, Petrochemical marketing infrastructure, Bitumen emulsions, Biofuels, Natural Gas, etc. HPCL has a vast marketing network consisting of 23747 Retail outlets, 6378 LPG distributorships, 4 Lube blending plants, 29 exclusive lube depots, 80 terminals & TOPS, 55 LPG bottling plants, 57 Aviation Fuel stations and 5134 Kms long of the pipeline network. HPCL has a significant presence in CNG & EV charging stations with 2038 CNG outlets & 5976 EV charging stations. In order to strengthen core processes and modernize, HPCL has embarked upon ambitious plans for expansion and diversification, such as Visakh Refinery Modernisation Project (VRMP), HPCL Rajasthan Refinery Ltd. (HRRL), etc.

HPCL along with its JVs is committed to the nation by transforming the energy landscape with a mission of becoming a "fully integrated company in the hydrocarbons sector of exploration and production, refining and marketing; focusing on enhancement of productivity, quality & profitability, caring for customers and employees, caring for environment protection and cultural heritage. It will also attain scale dimensions by diversifying into other energy-related fields and by taking up transnational operations".

HP GREEN R&D CENTRE

New GENERATION IDEATION CONTEST 2025

HPGRDC

HPCL has set up its world-class research campus 'HP Green R&D Centre' in Bengaluru, India with a mission to make energy & chemicals accessible to everyone through innovation. HPGRDC has a vision to be an energy research centre par excellence, pioneering innovative & sustainable technologies and products globally.

HP Green R&D Centre has laboratories focusing on the areas of FCC / RFCC, Hydroprocessing, Catalysis, Bioprocesses, Crude Evaluation & Fuels Research, Analytical & Chemical Synthesis, Standard Testing, Process Modelling & Simulation, Nano Technology, Petrochemicals and Polymers, CoE Lube Research, Resid Upgredation, Engine Testing, Novel Separations, Corrosion Studies and Battery Reasearch. Recently, several labs have been established to focus on Solar Energy, Combustion Research, Hydrogen, Bitumen Research and Water Research. All the labs are built with state-of-the-art research facilities. The R&D centre is recognized by the Department of Scientific and Industrial Research (DSIR) and has collaborations with various research institutes in India and abroad.

The R&D Centre has made major technical accomplishments in terms of developing & commercializing novel technologies/products in refineries, contributing towards meeting the renewable energy demands, which led to significant cost advantages and efficiency improvements in HPCL. HPCL Green R&D believes in nurturing innovation in all employees and has carved out several pathways for incubating innovative culture within the organisation.

THEME IDEAS for NGIC 2025

THEME 01
Sustainability & Circular Economy

- Oil recovery from refinery sludge and process residues
- Refining spent catalyst utilization
- Smart Water Recycling & Treatment Technologies
- Sustainable Green Polymers for a Circular Economy
- Spent lube oil recovery and reuse
- Sustainable polymer composites and green materials for packaging & downstream use
- E-waste and Plastic waste management

THEME 02
AI Powered Digitalization

- Real time digital twin models for yield optimization & process improvement
- Intelligent Corrosion Monitoring & Diagnostics
- AI-Powered system for refineries Process Efficiency, Leak detection, Fouling prediction etc.
- Predictive maintenance using Industrial IoT analytics
- Technological tools for R&D Centre
- Machine Learning for Catalyst / Material Design

THEME 03
New & Green Energy

- Hydrogen usage as a fuel
- Cost efficient renewable power production
- New generation materials for hydrogen storage
- Cost efficient process for hydrogen transport
- Efficient energy storage / conversion technologies (Battery/ Fuel Cell/ Super Capacitor/ Solar).
- Biomass utilization for fuels and chemicals
- Lignin conversion technologies
- Solar harvesting technologies for industry

THEME 04

Carbon Capture & Conversion Technologies

- Low concentration Carbon Dioxide Capture
- CO2 Valorisation for Fuels & Chemicals
- Future solvents and absorbents materials
- CO_2 compression and pipeline transport options
- CO_2 shipping and liquefaction technologies for coastal refineries
- CO2 capture - retrofit options for legacy refineries

THEME 05

Novel Functional Materials

- Heat-resistant adhesives/composites for refinery infrastructure
- Smart coatings or materials for corrosion / acid gas resistance
- High-Performance Materials for Batteries and Supercapacitors
- Advanced Nanomaterials / Polymer materials / Composites
- Polymer Electrolytes for Next Gen Energy Devices
- Biopolymers or circular polymers from captured CO_2 feedstocks
- Novel membrane materials for energy application
- Cost effective and stable MOFs/COFs for energy application

THEME 06

Refining Technologies & Petrochemical Production

- Process Intensification Strategies for Refining Operations
- Sustainable technologies for Re-refining of Used Lubricating Oils
- New age processes for Petrochemicals and Polymers
- Cutting-Edge Solutions for CO2 and H2S Absorption
- Cost-Effective Synthesis of Advanced Zeolite Catalysts for Petroleum Refining.
- New generation catalysts and adsorbents
- Heat recovery and autonomous thermal systems

ARCHIVES

2022

ARCHIVES

2023

ARCHIVES

2024

NEW GENERATION IDEATION CONTEST
2024 RESULTS

UNDER GRADUATE CATEGORY AWARDS

NAME OF AUTHOR	INSTITUTE	TITLE OF IDEA	AWARD
Mr. Ankush Das	NIT Durgapur	Production of Biofuel from Limonene Extracted from Citrus Fruit Skins	First
Ms. Swati Sahani	Central University Karnataka	Sustainable sewage water treatment	Second
Mr. Shivansh Gupta	ICT-Mumbai	Solvenization: Advancing PLA Recycling for a Circular Economy	Third
Ms. Gaytri Sachdeva	IIT Jammu	MagClean: Magnetic Nanoparticles for Sustainable Oil-Water Separation	Commendation
Mr. T AKSHAYKUMAR	Rajeev Gandhi Memorial College	"Smart Waste Segregation System Using AI and IoT for a Cleaner Future"	Commendation
Mr. Jeet Naskar	UEM Kolkata	Electronic Nose (E-Nose) based Universal Gas Detection System	Commendation

NEW GENERATION IDEATION CONTEST
2024 RESULTS

OPEN CATEGORY AWARDS

NAME OF AUTHOR	INSTITUTE	TITLE OF IDEA	AWARD
Mr.Rupali Gautam	IIT Delhi	Hydrogen for Harmony: A balance between Environment and Energy needs	First
Mr. Praveen Kumar	IACS Kolkata	MoS_2 as a Lubricant Additive: A Scalable and Cost-Effective Solution	Second
Mr. Arya Shah	ICT Mumbai	Novel Modification to Iodine-Sulfur Cycle for Green Hydrogen Production	Third
Mr. Pavan Kumar Mistry	ICT Mumbai	Improved Carbon Dioxide Capture using novel Phase Changing Absorbents(PCAs)	Commendation
Ms. Rubi	IIT-Madras	Commercially Energy Dense Zinc-Polyiodide Redox Flow Batteries	Commendation
Ms. Rakshita Mehta	IIT Guwahati	One-pot green hydrogen production coupled with electricity generation and fertilizer production: A zero-waste generation approac	Commendation

Who should participate?

This competition seeks participation from Graduates, Post Graduates, Research Scholars and Scientists across India.

How to submit the ideas?

Participants should submit the ideas on or before **31st Oct 2025**

Please visit - **https://ngic.hindustanpetroleum.com** for submission of ideas

Instructions

- One participant can submit multiple entries through multiple submissions.
- Write-up should be original. Plagiarism is strictly prohibited.
- Ideas will be evaluated based on its Novelty, Applicability, Clarity, Scalability and Integration Potential.
- Shortlisted ideas will be qualified for the next round.

CLICK HERE TO SUBMIT YOUR IDEAS

PRIZES FOR THE WINNERS

1st PRIZES WORTH INR 1,00,000/-

2nd PRIZES WORTH INR 50,000/-

3rd PRIZES WORTH INR 25,000/-

COMMENDATION PRIZES WORTH INR 10,000/-

"Best Institute Award - NGIC 2025" for contributing maximum number of Ideas in NGIC-2025"

Prizes will be awarded under two categories:

A) Open Category
B) Graduate Category

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CONTACT DETAILS

For any queries / clarifications, please write to us in the following email id:

Ngic@hpcl.in

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