CHESS Innovation Challenge 2024

Reference

Terms & Conditions

1. CHALLENGE PERIOD
10 Sep 2024 - 27 November 2024

2. CHALLENGE GUIDELINE
The challenge is open for undergraduate and post graduate students of CHESS participating universities (max. 2 students per group).

Participants are to read and understand the Innovation Challenge Terms & Conditions, as well as PETRONAS' Code of Conduct and Business Ethics (CoBE) before submitting their proposal.

Participants must ensure that all submissions are entirely original works created by themselves, with proper citation guidelines followed for any references made to other sources or journals. No portion or component of the submission may be taken from any external source without appropriate attribution.

Participants to select one of the categories and encouraged to share previous, current or future works or ideas related to the selected topic.

3. DISQUALIFICATION & WINNING ENTRIES
PETRONAS reserves the right to disqualify any Entries at any stage where it has reasonable grounds to believe that Participant has breached any of the terms and conditions of this Challenge.

PETRONAS reserves the sole and absolute right and discretion to select the shortlisted Participants and the Challenge Winner(s) or withhold from shortlisting any Participants or Challenge Winners.

Proposal Requirements (1/5)

Innovation Challenge Categories (1/2)

Category	Explanation	Examples
New Energy	Project that involves exploration, development, and use of alternative energy sources, including improvements of current available New Energy sources or proposing New Energy <u>Subcategory:</u> • Renewables • Green Mobility • Hydrogen • Electrification	Renewables: Wave energy, kinetic energy recovery, energy storage, solar power, wind power, hydropower, geothermal energy, biofuels, etc. Green Mobility: EV, bio-diesel fueled vehicle, etc. Hydrogen: Hydrogen generation from H2O or CH4, efficient power generation from Hydrogen source Electrification: conversion from Gas Engine compressor to motor-driven compressor, etc. *The idea shall not be limited to the above-mentioned example.*
Circular Economy	Economic system that aims to create a more sustainable and resilient system by eliminating waste and pollution, keeping products and materials in use, and regenerating natural systems. Using the circular economy concept, chemicals/materials are designed for durability, reuse, recycling, and remanufacturing to keep them circulating as long as possible, rather than being disposed of after a single use. <u>Subcategory:</u> • Specialty chemicals • Advanced materials	Specialty chemicals – Biobased surfactant, succinic acid, biobased lubricants, etc. Advanced materials – Lignin-based carbon material, orange fiber, self-healing materials, etc. *The idea shall not be limited to the above-mentioned example.*
Sustainability	Sustainability: Delivering Value in a Responsible and Sustainable Manner <u>Subcategory:</u> • Decarbonisation: low carbon economy and to reduce operational greenhouse gas emission • Nature & Biodiversity: Conserve, protect and restore nature as we recognize that climate and nature are intertwined and need to be addressed in parallel • Social: Identifying and managing business impacts regarding people. Relationships and engagements with their stakeholders are critical to managing the impact proactively • Sustainable IT: also known as Green IT	Decarbonisation: Energy efficiency, Zero routine flaring & venting, Carbon capture and storage Nature & Biodiversity: Bio-based Value Chain, Nature-based climate solutions, Clean water, Sustainable Agriculture, Waste management (plastic and microplastic) Social: Education, Sustainable Tourism, Human Rights Sustainable IT: Eco-friendly design and disposal i.e. design, manufacture and disposal of IT equipment in a responsible manner, Energy efficiency i.e. reducing electricity consumption of data centers, servers and other IT equipment (water cooling), e-waste management: properly manage electronic waste to present from harmful toxins from contaminations. *The idea shall not be limited to the above-mentioned example.*

Proposal Requirements (2/5)

Innovation Challenge Categories (2/2)

Category	Explanation	Examples
Business & Operational Excellence	Innovations that enhance the efficiency, effectiveness, and overall performance of business operations to drive continuous improvement, optimize resource utilization, and deliver impactful values to customers and stakeholders. <u>Subcategory:</u> • Supply Chain Management • Waste Management • Process Optimization • Customer Experience Enhancement • Health, Safety & Environment	Supply Chain Management: the goal is to provide maximum customer service at the lowest possible cost. The areas of improvement are as below: • Traceability of procured goods in owner's storage • Clarity of end-to-end procurement route to eliminate supply chain bottleneck. • Lead-time of ordered items. • Quality assurance process of procured goods. • Carbon emission from logistical & goods delivery activities. Waste Management: Oil & gas activities produce unwanted leftovers from production or waste products from various phases of exploration, extraction, refining, and distribution processes within the industry. Waste management involves handling, treatment, and disposal of waste materials generated during the exploration, extraction, refining, and distribution processes within the oil and gas industry. The goal is to minimize the environmental and health impact, promote sustainability, and ensure compliance with relevant regulations at the most optimum cost. The areas of improvement are as below: • Segregation and Storage • Waste Minimization • Waste Treatment & Recycling • Waste Disposal • Waste Monitoring and Reporting *The idea shall not be limited to the above-mentioned example.*

Proposal Requirements (3/5)

Field Information for Proposal Submission (1/3)

Field	Detail	Remarks	Platform Setting	Proposal Paper Evaluation
Tech Challenge	Select Challenge name from the dropdown		Mandatory	
Submission Category	Select submission category: individual/ joint	Joint submission is for max. 2 students per group	Mandatory	
Company profile	Attach the individual/ group profile if any		Optional	
Technology Ownership	Select ownership from the dropdown	Own technology is for own proposed idea and solution	Mandatory	
Details of Technology Partner	State the details of technology partner (if any)		Optional	
Technology/ Product Title	State the proposed technology/ product/ solution title	Referred as the proposal paper title	Mandatory	
Technology / Product code	If any		Optional	
Category	Select the category name from the dropdown		Mandatory	
Product / Technology Offering	Select the offering from the dropdown		Optional	
Readiness	Select the technology/ solution readiness level e.g. TRL0 for ideation, TRL1 for conceptual	*Reference: Technology Readiness Level*	Mandatory	
Year(s) Commercialised in Market	No. of Year(s) Commercialised in Market		Optional	
Applicability	Upstream, Downstream, New Energy, Gas		Optional	
Product / Technology Image	Attach the product/ technology image	Image/ illustration of the idea/ solution/ product/ technology	Mandatory	
Technology / Product Description/ Abstract	Provide an executive summary/ abstract		Mandatory	Y
Problem / Issues That It Solved	Provide descriptions of the solving problems/ issues		Mandatory	Y
The Solution	Provide descriptions of the solution e.g. how the technology works		Mandatory	Y

Proposal Requirements (4/5)

Field Information for Proposal Submission (2/3)

Field	Detail	Remarks	Platform Setting	Proposal Paper Evaluation
Operating Envelope of Propose Technology / Product	Provide descriptions of operating envelope		Mandatory	Y
Advantages of Proposed Technology	Provide advantages of the proposed solution		Mandatory	Y
Limitations of Proposed Technology	Provide limitations of the proposed solution		Mandatory	Y
Background of the Product/Technology	Provide background of the proposed solution (if any)		Optional	Y
Key Achievement(s) to Date	Provide key achievement (if any)		Mandatory	Y
Potential Value Creation	Select from Cost Savings, Cost Avoidance, New Revenue, Sustainable Element (if any)		Optional	Y
Please attach supporting calculation for VC	Attach file for reference (if any)		Optional	
Number of months required to deploy technology	State no. of months (in numeric)	Estimated no. of months for solution implementation etc.	Mandatory	
Please attach schedule (activities timeline) to deploy proposed technology	Attach proposal in pdf	Proposal in pdf is to be attached.	Mandatory	
Please attach project / team organisation chart	Attach proposal in pdf (if any)	Proposal in pdf is to be attached.	Optional	
Please attach technology / product brochure / technical specifications	Attach proposal in pdf	Proposal in pdf is to be attached.	Mandatory	Y
Please attach technology / product video	Attach video in mp4 format	A sample video in mp4 is to be attached; the actual video requirement for Innovation Challenge Round 2 will be communicated separately to those shortlisted participants.	Mandatory	

Proposal Requirements (5/5)

Field Information for Proposal Submission (3/3)

Field	Detail	Remarks	Platform Setting	Proposal Paper Evaluation
Has the technology/product been published in any recognised Conference?	Yes/ No		Mandatory	
Please attach the white paper / conference paper. Be sure the document includes the year it was published.	Only applicable if selected as yes		Mandatory	
Has the technology/product received any certification from recognised bodies?	Yes/ No		Mandatory	
Certification attachment	Only applicable if selected as yes		Mandatory	
Does the technology/product described holds any IP?	Yes/ No		Mandatory	
Intellectual Property Details	Only applicable if selected as yes		Mandatory	
Deployed In PETRONAS	Yes/ No		Mandatory	
Deployment Details	Only applicable if selected as yes		Mandatory	
Share the Close Out Report	Attach the report (if any)		Optional	
Has the technology/product been deployed outside of Petronas?	Yes/ No		Mandatory	
Please attach Case Study on Technology Deployment	Only applicable if selected as yes		Mandatory	

FAQ

Who can join CHESS Innovation Challenge 2024?
The challenge is open for undergraduate and post graduate students of CHESS participating universities (max. 2 students per group).

Will we get certification for participating in CHESS Innovation Challenge 2024?
Yes, you will receive once the challenge ends and provided that we have received a complete submission.

Will this event be virtual?
Yes, it will be mostly virtual with the exception of the finale event where the pitching/ demonstration/ prototype showcase will be in person and the venue within Klang Valley will be announced closer to the date.

Will the organizer cover the accommodation and transportation costs?
Yes, the accommodation and transportation will be arranged by PETRONAS for Finalists from universities outside Central Region, i.e. Sabah, Sarawak, East Coast, Southern and Northern to participate in the finale event in Klang Valley.

How many rounds will the challenge have?
There will be 3 rounds i.e. proposal paper, video pitch and prototype demo in the finale.

Are there any criteria for each category?
Please refer to the criteria sets.

How do I submit my entry?
Submissions can be made via link provided here in this pack.

When will the winner be announced?
Winners will be announced on 27 Nov 2024 during the finale event.

How can I stay updated on the challenge's progress and announcements?
Regular updates, judging period, shortlisted proposal, announcements etc. will be shared via participants' registered email and informed to the respective university focal.

If you have any further questions regarding the challenge, please don't hesitate to contact us at chess@petronas.com