IChemE
Palm Oil Processing
Special Interest Group

POPSIG-KLK Palm Oil Video Competition 2023

Awarded Videos and Prize Recipients

- **Video title: Overview of Palm Oil Process in the Coming Hundred Years**
  By: Andersson T'ng Khai Shern, Yeow Teck Ann and Wong Man Kei
  View the video at: https://youtu.be/xjY8gzXecpw

  The video provides a glimpse into the prospective evolution of palm oil process plant in the future 100 years. The palm oil industry confronts substantial environmental hurdles, grappling with issues such as pollution and waste generation, remains unsolved. Yet, amidst these challenges, a realm of promising solutions emerges, illuminating a path forward. Among these solutions, the conversion of waste glycerin into 1,3-propanediol stands out, exemplifying how innovation can transform byproducts into valuable commodities. Additionally, the repurposing of byproducts like POME and EFB presents exciting possibilities, as they find new life in applications like supercapacitors, underscoring the industry's capacity for sustainable energy development. Carbon capture and storage technology, aiming for carbon neutrality by 2050, signifies a commitment to dedicate towards environmental stewardship. Moreover, advancements in catalysts drive enhancements in productivity and selectivity, while broadening the industry's non-food applications fosters diversification, garnering into a multifaceted and resilient economy. Furthermore, integrating and leveraging Industry 4.0 and 5.0 concepts in palm oil industry, encompassing automation, artificial intelligence (AI), and human-machine collaboration, catalyzes profound metamorphosis in palm oil processing, entailing elevated efficiency, ameliorated safety, and refined quality. In summation, the group's video envisions a future where the palm oil industry pioneers' eco-friendly practices, spearheading transformative change through innovative methodologies and technological leaps, laying the foundation in actualising a vibrant and sustainable future.

  Andersson T'ng Khai Shern, Bachelor of Engineering (Honours) in Chemical Engineering (Year 4), Xiamen University Malaysia.
  Andersson T'ng Khai Shern is currently a final year undergraduate pursuing a Bachelor of Chemical Engineering (Honours) at Xiamen University Malaysia. Beyond excelling in his academic pursuits, he possesses a fervent interest in research-driven endeavours. He presently holds the position as research assistant within the School of Energy and Chemical Engineering since his second year of undergraduate studies. He has demonstrated his competence and dedication in the research of biomass utilization, with a specific emphasis on sustainable energy applications. His enthusiasm for research has also extended his passion to the exploration of nanomaterials, particularly in contributing towards the advancement of intelligent packaging technologies. He has demonstrated a noteworthy passion for palm oil-related fields, a passion that unleashes his potential and a dedication to pushing boundaries in palm oil-related research endeavours, leading to tremendous achievement in competitions and conference events. Andersson's experiences go beyond the academic realm, entailing active participation as he presently takes on administrative and executive roles within XMUM IChemE Student Chapter.

Wong Man Kei, Bachelor of Engineering (Honours) in Chemical Engineering (Year 4), Xiamen University Malaysia.

Wong Man Kei is presently a final year undergraduate pursuing a Bachelor of Chemical Engineering with Honors at Xiamen University Malaysia. She is a holder of XMU Merit Scholarship and Dean's List Award. Currently, she holds the position of a research assistant within the School of Energy and Chemical Engineering, under the supervision of Prof. Dr. Wee-Jun Ong. Her passion lies in the innovative exploration and research of nanomaterials, with a specific focus on environmentally sustainable energy applications. Her commitment extends to the advancement of palm oil-related fields, as she envisions the significant societal benefits of palm oil processing. Man Kei's experiences involve active participation in numerous competitions and projects centered around the creative utilization of palm oil products and wastes.

Yeow Teck Ann, Bachelor of Engineering (Honours) in Chemical Engineering (Year 4), Xiamen University Malaysia.

Yeow Teck Ann is a final year chemical engineering student at Xiamen University Malaysia. Teck Ann is an IOI scholar and the holder of Dean's List award. Teck Ann is privileged to receive the Research Student Assistantship and involve in multiple research projects in Dr Tan Jian Ping's research group. He has developed strong interest in discovering new biochemical processes and tacking problems faced by the palm oil industry. Currently, he is bootstrapping for an early-stage startup which focuses on the upcycling of oil palm fronds for biofertilizer production. In addition to that, Teck Ann is serving as the President of XMUM IChemE Student Chapter and was the director at Young Malaysian Engineers.

- **Video title: Impact of Generation Z Towards the Palm Oil Industry**
  By: Ng Wai Hoong
  View the video at: https://youtu.be/qkgUEjwIziw

  The surge in demand for palm oil, a major economic product of Malaysia, is prompting the need for new workers due to its growing popularity. Generation Z's entrance into the workforce is set to have a significant impact on the palm oil industry. This environmentally-conscious generation is expected to address crucial issues such as deforestation caused by expanding oil palm plantations. Their tech-savvy upbringing positions them to integrate technology effectively such as the big data analytics which offer insights into weather patterns, soil quality, and crop health for informed decisions and precision agriculture.

  Generation Z's strong online presence enables them to raise global awareness about sustainable palm oil practices. Through engaging content, they can highlight the environmental and social impacts of unsustainable production. However, the extent of their influence will depend on their response to challenges and the industry's willingness to adapt. Generation Z has the chance to drive innovation and sustainable practices, steering progress in the palm oil industry. Their unique combination of environmental concern, technological proficiency, and social media influence places them at the forefront of shaping the industry's future. Therefore, embrace Green Gold by cultivating innovation and sustainability in the palm oil industry.

  Ng Wai Hoong, Bachelor of Engineering (Honours) in Chemical Engineering (Year 3), Universiti Malaya.
  Ng Wai Hoong is a student pursuing a Bachelor's Degree in Chemical Engineering at Universiti Malaya. He currently holds the position of practical trainee at Palm Oleo (Klang) Sdn Bhd. Notably, he served as the President of the Chemical Engineering Undergraduate Club (CEUC) from 2022 to 2023. During his tenure, he successfully organized the intervarsity event titled "Unleashing Engineers' Potential: An Engineering Challenge (AEC) 2023." Furthermore, back in the year 2022, he took on the role of Director for the IChemE Student Chapter Festival 2022.

  In recognition of his accomplishments, it's worth mentioning that he achieved the title of second runner-up in the Technical Video Competition category at the National Chemical Engineering Symposium (NACES) 2022.

- **Tomorrow's Green Gold: The Palm Oil Process Plant of the Future**
  By: Yiek Siew Teck
  View the video at: https://youtu.be/75IJlX-tqWk

  In 2123, the Palm Oil Process Plant exemplifies tech and sustainability progress. This advanced facility minimizes ecological impact via artificial intelligence (AI), renewable energy, and automation. Solar panels and wind turbines power operations and local grids. Workers, using high-tech safety gear, oversee tasks, aided by robotics and AI-driven systems. Conveyor belts and robotic arms streamline processes, boosting productivity and safety. Environmental focus is key, with a water-saving filtration system curbing pollution. Drones with sensors monitor and counter issues like pests, promoting sustainable farming.

  The palm oil process plant of the future pioneers sustainable palm oil products, addressing eco-conscious demands. Profits aid rainforest conservation, restoring habitats and safeguarding wildlife. The diverse workforce emphasizes inclusivity, bolstering innovation for a greener future. The plant embodies harmony between technology and environmental stewardship, symbolising dedication to sustainable palm oil, ecosystem protection, and a better and balanced world.

  Yiek Siew Teck, Bachelor of Engineering (Honours) in Chemical Engineering (Year 3), Curtin University Malaysia.
  Yiek Siew Teck, an ambitious engineering student from Malaysia, is driven by his passion for problem-solving and sustainable endeavours. Pursuing a Bachelor's Degree in Chemical Engineering at Curtin University, his academic journey shines with consistent excellence, earning the Vice-Chancellor's List of 2021, alongside Dean's List awards and Letters of Commendation for four consecutive semesters.

  Beyond academics, Siew Teck actively voices his experiences as a Student-Staff Consultative Committee member and Curtin Perth Delegate representative for the Department of Chemical and Energy Engineering, contributing towards improving the learning experience in his campus.

  As the 2023 President of Curtin Malaysia's IChemE Student Chapter, he spearheads initiatives ranging from community outreach to organizing technical symposiums alongside his committees. His leadership skills were further highlighted as the Academics Sub-division of Curtin's Student Council 2022, bridging communication between Deans, faculty, and students to provide the best outcome whilst actively encouraging academic integrity.

  Siew Teck has also led as High Committee for the Institution of Chemical Engineers Student Chapter Competition and Conventions (ICMCC) 2022 and 2023, collaborated with IChemE NECC Malaysia for career talks and participated in numerous POPSIG competitions. He aspires to inspire fellow and future engineers worldwide through diligent leadership in the chemical engineering domain.