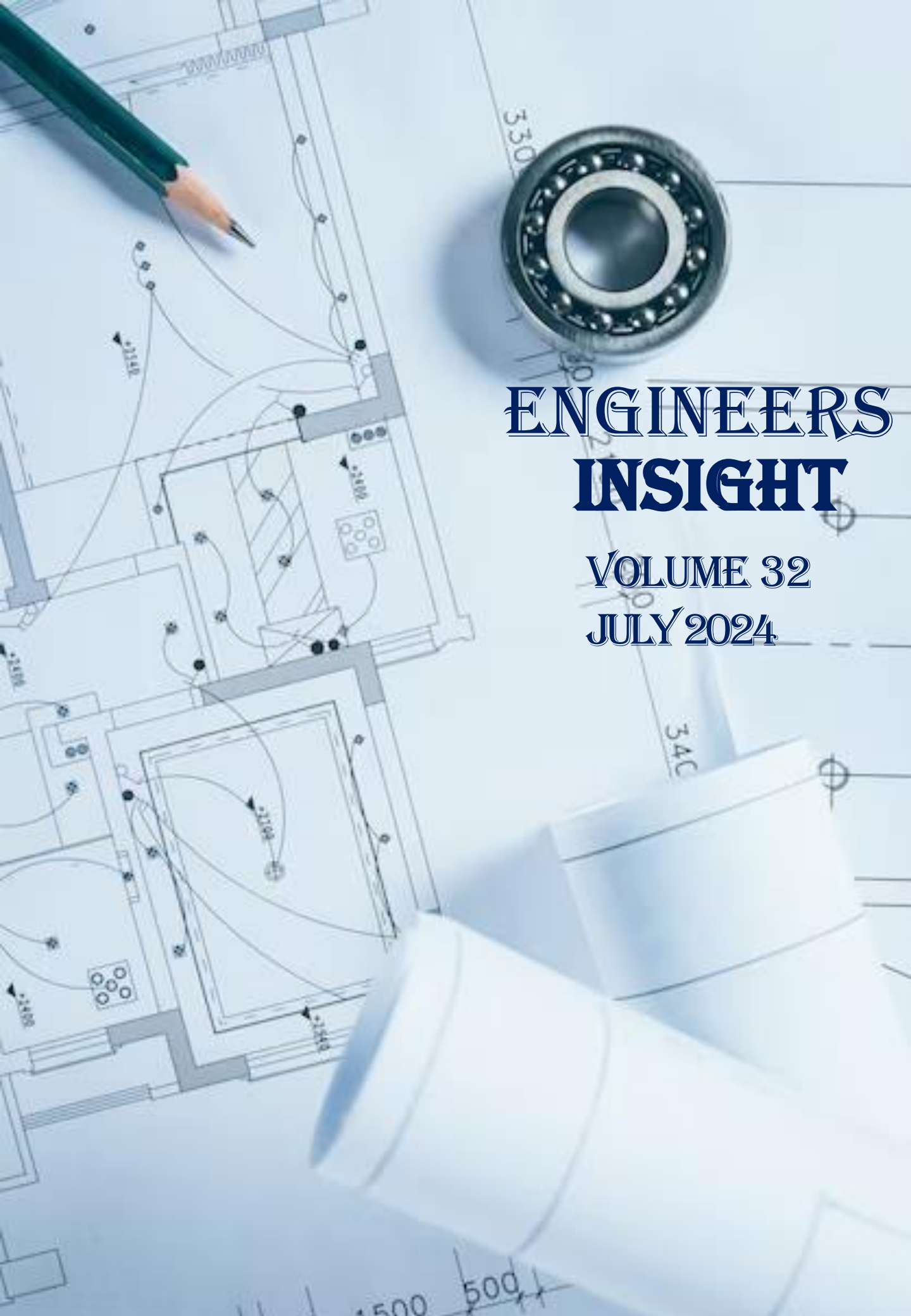

ENGINEERS INSIGHT

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Engineers Insight
Editorial Board

Assoc. Prof Ts Ir Dr Sivakumar Sivanesan

Prof Ir Ts Dr Vinesh Thiruchelvam

Ts Dr Arun Seeralan Balakrishnan

Fatin Ayuni Mohd Suhaimi

Dr Wong Siew Fan

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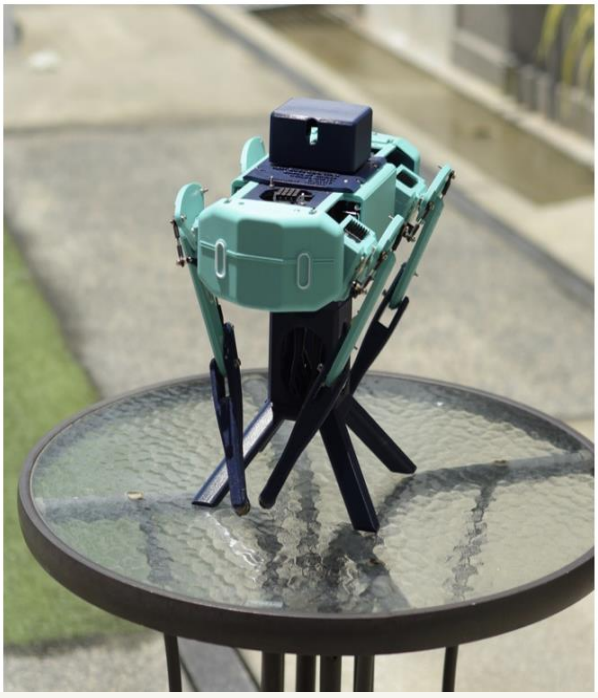
INTERNATIONAL INTER VARSITY INNOVATION CHALLENGE (IVIC) 2023
1st – 8th DECEMBER 2023

From November 1st to 8th December 2023, the International Inter Varsity Innovation Challenge (IVIC) 2023 showcased academic prowess and groundbreaking innovations on a global stage. Asia Pacific University's Center of Research and Development for IoT (CREDIT) played a pivotal role, with Center Head Dipl-Ing.Inv.Ir. Narendran Ramasenderan and including 7 mentors, Ir. Ts. Dr. Alexander Chee Hon Cheong, Ir. Ts. Dr. Yvette Shaan Li Susiapan, Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal, Assoc. Prof. Ir. Ts. Dr. Siva Kumar Sivanesan, Ir. Eur. Ing. Ts. Dr. Lau Chee Yong, and Mr. Krishna Ravinchandra guiding the teams to success. All mentors are the brainchild of APU's Chief Innovation and enterprise officer Prof. Ir. Eur. Ing. Ts. Dr. Vinesh Thiruchelvam.

Adhering to stringent guidelines, each team presented their scientific narratives through 3-minute videos, focusing on presentation skills, conveying complex research to a lay audience, and articulating ideas effectively via PowerPoint slides.



Triumphant Victories for CREDIT Teams at IVIC 2023:

Gold Medal:

- **Project:** RescueAI Robotic Autonomy for Disaster Prediction and Response
- **Team Members:** Rohit, Kenneth Ng Joo Kiat, Cajun Tai Ka Joon
- **Description:** The team employed autonomous drone technology in disaster prediction and response, revolutionizing natural disaster mitigation.

Silver Medals:

- **Project:** Underwater Drone
- **Team Members:** Zainab, Vaishnavee, Jun Yan, Kah Min, Zhun Hoe
- **Description:** The team deployed Unmanned Underwater Vehicles (UUVs) for environmental conservation.
- **Project:** Lexxo Exoskeleton for Elderly Mobility
- **Team Members:** Zainab, Vaishnavee, Jun Yan, Kah Min, Zhun Hoe
- **Description:** The team designed a biomechanically advanced walking cane for elderly mobility.

Silver Medal:

- **Project:** Smart 3D Green Plastic Monitoring and Management System
- **Team Members:** Dr. Lau Chee Yong, Mohammed Saad Mahmood Al-Kubaisi, Ryan Raj
- **Description:** The project creatively converts plastic bottles into valuable resources for 3D printing, providing a cost-effective alternative to purchasing new filament.

The project caters to various groups, including 3D printing enthusiasts, professionals, educational institutions, environmental organizations, maker communities, Fab Labs, and sustainable product manufacturers.As we reflect on the remarkable achievements of Asia Pacific University of Technology and Innovation at IVIC 2023, the university stands as a testament to the transformative power of collaboration, innovation, and environmental responsibility. The victories across various domains underscore the commitment to excellence and the pursuit of solutions that make a meaningful impact on our world. In the spirit of these accomplishments, APU continues to pave the way for a future where technological advancement harmonizes with sustainability, leaving an indelible mark on the landscape of global innovation.

PARTNERSHIP WITH ADVANCE PACT SDN BHD 14th DECEMBER 2023

KUALA LUMPUR – On December 14, 2023, Asia Pacific University of Technology and Innovation (APU) solidified a strategic partnership with Advance Pact Sdn Bhd (APSB) focusing on Healthcare Device Optimization and Management.

This groundbreaking agreement which formalized at APU, marks a significant step in advancing the realms of technology and engineering within the healthcare sector. The collaborative effort, spearheaded by APU's Vice-Chancellor Prof Dr. Ho Chin Kuan and APSB's Chief Executive Officer Pn Siti Ainol Khabtiah Mohd Jamil, has materialized from the visionary proposal put forth by APU's Chief Innovation and Entrepreneurship Officer (CIEO) Prof Ts. Dr. Vinesh Thiruchelvam.

As part of the multifaceted collaboration, Advance Pact has demonstrated its commitment by enrolling two of its staff members as PhD students at APU. This academic pursuit, with a focus on Engineering and specializing in Artificial Intelligent (AI) technology projects, is under the supervision of Ir Eur Ing Ts Dr Lau Chee Yong and co-supervised by Assoc Prof Dr V Sivakumar.

Ir Eur Ing Ts Dr Lau Chee Yong's expertise and guidance will play a crucial role in nurturing the next generation of professionals in the field. This collaboration not only strengthens the ties between industry and academia but also underscores APU's commitment to providing cutting-edge education and research opportunities.

Commenting on the collaboration, Ir Eur Ing Ts Dr Lau Chee Yong expressed enthusiasm about the prospect of guiding the APSB staff members in their PhD journey. "I am honored to contribute to this collaboration, and I believe that by combining industry expertise with academic rigor, we can push the boundaries of technological innovation in healthcare."

The partnership aims not only to advance knowledge through research but also to address real-world challenges in healthcare device optimization and management. With the joint efforts of APU and APSB, the collaboration is poised to create impactful solutions that transcend the boundaries of traditional approaches.

This strategic collaboration between APU and APSB reflects a shared vision of leveraging technology to enhance healthcare services. It is anticipated that the knowledge and innovations generated through this partnership will have a lasting impact on the healthcare industry, aligning with the broader national agenda.

The signing ceremony held at APU on December 14, 2023, symbolizes the beginning of a transformative journey, where academia and industry converge to shape the future of healthcare technology. The collaborative spirit demonstrated by APU and APSB sets a precedent for future engagements that bridge the gap between theory and practice, ultimately benefiting society at large.

INTERNATIONAL INVENTION, INNOVATION AND DESIGN COMPETITION 2024 (I3DC)

16th – 17th MAY 2024

APU students entangled in different Categories and won Awards as indicated below:

Topic: Achievements in the Tertiary and Professional Categories at the International Invention, Innovation and Design Competition 2024 (i3DC).

Tertiary Category: Asia Pacific University (APU) students from the Center for Research and Development of IoT showcased their remarkable innovations and received multiple awards:

Gold-Winning Innovations:

- **V-Swim: Swimming for Visually Impaired Individuals**
- **Team:** Jordan Russell, Ng Khang Yian, Venus Kong Chak Hong, Tee WeiKiat
  Description: An innovative solution enhancing aquatic safety and accessibility for visually impaired individuals.
- **Lexxo: A Geriatric Exoskeleton for Muscular Recovery**
  Team: Sin Jun Yan, Chin Kah Min
- **Description:** A groundbreaking design to aid in mobility and rehabilitation for the elderly.
- **Marguard: Underwater Drone with AI Vision for Marine and Coral Monitoring**
- **Team:** Zainab Yasmin, Darvwesvaar A/L Sivapragasam, Durkesh Ravi Shankar.
- **Description:** An underwater drone equipped with AI vision for effective marine and coral monitoring.

Silver-Winning Solutions:

- **NAVIGATION, LOCALIZATION, & COMMUNICATION for PEOPLE WITH VISUAL IMPAIRMENT VIA SONAR**
  Team: Kanema Sachingongu, Arpa Majumder, Ahmed Mohammed Ahmed Greynon, Syed Mohsin Ali, Yusuf Hatem Abdelghafar Shaban
  Description: A solution to expand independent navigation possibilities for visually impaired individuals.

- **Greenplastic: An AI Solution to Recover Marine Plastic**
  Team: Mohammed Saad Mahmood Alkubaisi, Ryan Raj
  Description: An AI-driven initiative to recover marine plastic for reuse as 3D printing filament.

- **Alzhimex: Light Therapy for Alzheimer's Patients**
  Team: Rohit Thomas, Pua Jun Yu, Kannan Uthaya Kumar
  Description: An innovative light therapy system designed to enhance cognitive capabilities in Alzheimer's patients.

Bronze-Winning Vision:

- **Syghtsense: Indoor Spatial Navigation for the Blind**
  Team: Wong Heng Ying, Abdul Hafiz Shahril, Goh Hua Hoo, Tan Sze Yuan
  Description: A solution to assist the blind in navigating indoor spaces.

Professional Category:

APU's School of Engineering faculty and student collaborators also excelled in the professional category:

Gold-Winning Triumph:

- **Safeai: Anomaly Detection for Manufacturing, Maintenance, and Safety Hazard Detection with Robotic Autonomy and Custom LLM Chatbot**
  Team: Ng Joo Kiat, Cajun Tai Ka Joon, Ang Jia Ze, Sharen Chrisan Fabian Perera, Muhammad Ahmed
- **Description:** A cutting-edge system enhancing manufacturing safety and efficiency through robotic autonomy and AI chatbots.

Silver-Winning Brilliance:

- **Maviglasses: Smart Glasses for Industrial Remote Electrical Inspection**
  Team: Rohit Thomas, Pua Jun Yu, Kannan Uthaya Kumar
  Description: Smart glasses designed for remote electrical inspection in industrial settings.

Bronze-Winning Ingenuity:

- **Engineering Facility Digital Twin for Facility Energy Management**
  Team: Lecturers from the School of Engineering
  Description: A digital twin system aimed at driving energy efficiency in engineering facilities.

Mentorship and Leadership:

These extraordinary accomplishments were made possible through the visionary guidance and unwavering support of the following mentors:

- Prof. Ir. Eur. Ing. Ts. Dr. Vinesh Thiruchelvam (Chief Innovation and Enterprise Officer)
- Assoc. Prof. Ir. Dr. Siva Kumar Sivanesan
- Dipl.-Ing. Inv. Ir. Narendran Ramasenderan
- Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal
- Ir. Eur. Ing. Ts. Dr. Lau Chee Yong
- Ir. Ts. Dr. Alexander Chee Hon Cheong
- Ir. Ts. Dr. Yvette Shaan-Li Susiapan
- Mr. Krishna Ravinchandra

YOUNG SCIENTIST NETWORK -ACADEMY OF SCIENCES MALAYSIA COLLOQUIUM

16th MAY 2024

On 16th May, Degree's Level 2 Engineering Students trained by Dr. Reena received Gold Award in International Invention, Innovation and Technology Exhibition (ITEX) – WYIE Category. The project presents a smart green home system featuring seven innovative solutions, mainly (1) RFID Smart Garage, (2) Numeric Passcode Lock System, (3) Theft prevention system, (4) Solar powered greenhouse, (5) Rainwater harvesting system, (6) Fire alarm system, and (7) Neighbourhood alerting system. The project focused on providing solutions in accordance with sustainable development goals (SDGs).

Team members: Dhivessh Vengada Thevan, Abbisarika, Tanaya Gadkari, Devesh Manoharan, and Saarvin Kumar.

Advisor: Ir. Ts. Dr. Reena Sri Selvarajan

16th EUROPEAN EXHIBITION OF CREATIVITY & INNOVATION (EUROINVENT) 16th MAY 2024

On 16th May, 4 students from Asia Pacific University (APU), Ng Joo Kiat, Cajun Tai Ka Joon, and Ang Jia Ze received multiple prestigious awards at EUROINVENT 2024. Their innovative project, the SARVIDROS (Search and Rescue Vision Drone System), marks a significant milestone in disaster management technology. Building upon their successful 2023 RESCUEAI disaster drone initiative, the team integrated a bespoke large language model developed with the open-source LLama 2 framework, further enhanced with Azure Digital Twin for advanced data analytics. This sophisticated model autonomously detects visual cues and executes missions, critically reducing the impact of disasters and safeguarding lives and property.

The project received the following accolades:

- EUROINVENT 2024 Gold Medal Award
- EUROINVENT 2024 Diploma of Excellence
- Excellence in Innovation Award by the Romanian Inventors Forum (FIR)
- Special Award of Norton University (Cambodia)
- Special Award of Highly Innovative Unique Foundation (HIUF, Saudi Arabia)

Team members: Ng Joo Kiat, Cajun Tai Ka Joon, Ang Jia Ze

Advisors: Ir. Narendran Ramasenderan, Hema Latha Krishna Nair, Krishna Ravinchandra

IEM AWARD
1st June 2024

Kok Fu Jie, a Bachelor of Engineering in Mechatronic Engineering with Honours graduate from the Asia Pacific University of Technology & Innovation (APU), received the esteemed Institution of Engineers Malaysia (IEM) Gold Medal Award 2023. This award was presented at the 65th IEM Annual Dinner on June 1, 2024.

Kok Fu Jie receiving the award from the IEM President Prof Ir Dr Jeffrey Chiang Choong Luin

The IEM Gold Medal Award honors those who have made significant contributions to engineering and technology. Fu Jie was recognized for his outstanding academic achievements and potential to influence the future of engineering, making him a deserving recipient. He graduated with an impressive CGPA of 3.95 and earned multiple accolades. This award further validates his exceptional skills and dedication to advancing Malaysia's engineering industry.

Currently employed as an engineer at Sensata Technologies Inc, Fu Jie showed a strong commitment to academic excellence and extracurricular activities during his university years. His smooth transition from student to professional highlights the quality of education and practical experience offered by APU.

Kok Fu Jie holding the award

At the ceremony, Fu Jie expressed his gratitude, stating, “I am deeply honoured to receive the IEM Gold Medal Award. I would like to express my sincere gratitude to APU for providing an exceptional learning environment throughout my course in Mechatronic Engineering. Special thanks to Dr. Lau and all the professors who have guided and inspired me throughout my academic journey. Your dedication and support have been invaluable. This award is not just a recognition of my efforts but also a testament to the quality education and mentorship I have received. Thank you for believing in me and encouraging me to achieve my best.”

Assoc. Prof. Ir Ts Dr. Siva Kumar Sivanesan, Head of the School of Engineering, confirmed the significance of the Gold Awards, which are given to the best final-year student from a university with accredited Engineering Degree programs. He emphasized that the consistent success of these awards reflects the outstanding teaching and learning quality at APU’s School of Engineering.

Kok Fu Jie with his mentor, Assistant Professor Ir Eur Ing Ts Dr Lau Chee Yong

Ir. Eur. Ing. Ts. Dr. Lau Chee Yong, Assistant Professor at the School of Engineering in APU expressed pride in Fu Jie's accomplishments, stating that his achievements inspire both current and future students. The IEM Gold Medal Award underscores his exceptional work ethic, intellectual prowess, and ability to excel in a challenging academic environment. He further added after witnessing him receiving the award on stage "This award not only fulfils him, but it also fulfils me." Dr Lau also taught Fu Jie for 5 semesters in his 4 years study.

The award was presented to Fu Jie by IEM President Ir. Prof. Dr. Jeffrey Chiang Choong Luin, with Deputy Prime Minister Yang Amat Berhormat Dato' Sri Haji Fadillah bin Haji Yusof also in attendance. The Deputy Prime Minister lauded engineers for their crucial role in infrastructure and economic development, significantly contributing to Malaysia's nation-building.

POWERING YOUR INNOVATION COMPETITION 2023

We are thrilled to announce that Muhammad Ahmed has emerged victorious in the prestigious postgraduate innovation competition with his remarkable creation, Maviglasses. Developed by Iotech Solutions—a startup spinoff from the Center for Research and Development of IoT at Asia Pacific University (APU)—Maviglasses exemplify the cutting-edge advancements being achieved within our institution.

Maviglasses are GenAI and sensor-infused smart glasses, initially developed through partnerships with MRANTI, START iix, and Fraunhofer IEM's MRANTI-iix X-celerator (MIX) programme. This collaborative effort aims to revolutionize corporate innovation by bridging the gap between startups and leading German enterprises. Originally conceived as a solution for electrical preinspection, Maviglasses integrate sensors with generative AI, enabling offsite electrical inspections for both domestic and industrial applications. The technology evolved to address defect detection for an insulation glove manufacturer, leveraging the Nvidia DeepStream framework and earning the nickname Mavihub. For the competition, Ahmed further refined the solution using the OpenVINO framework and AnomLib to tackle component mismatch and defect detection in PCB manufacturing and assembly.

Achievements and Impact:

This achievement underscores the immense potential of Ahmed's innovation, which outshone other well-funded and larger prototypes from competing public universities. The Powering Your Innovation competition, organized by Global Turbine Asia Sdn Bhd (GTA) under the theme "Towards Digitalization & Sustainability in Aviation, Aerospace, and Mechanical," is part of the Asia Turbomachinery Pump Symposium (ATPS) and coordinated by the TEES Turbomachinery Laboratory.

The significance of this victory is profound, as it highlights the rapidly evolving role of technology in the aviation industry. Emerging trends such as autonomous aircraft, IoT, AI, AR, blockchain, 3D printing, electric and hybrid aircraft, biometrics, virtual and augmented reality training, contactless technology, predictive maintenance, in-flight connectivity, cloud computing, advanced materials, and next-generation air traffic control are transforming the industry. These advancements enhance safety, efficiency, and customer experience while reducing environmental impact. The future resilience of the aviation and aerospace sectors hinges on a workforce that understands and is prepared to address these challenges. This vision aligns with the UN Sustainable Development Goals (SDGs), particularly SDG 7 Affordable and Clean Energy, SDG 9 Industry, Innovation, and Infrastructure, and SDG 11 Climate Action.

Team and Advisors:

- **Innovator:** Muhammad Ahmed
- **Team Members:** Rohit A/L Thomas, Kannan Uthaya Kumar, Pua Jun Yu
- **Advisors:** Dipl.-Ing. Inv. Ir. Narendran Ramasenderan, Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal, Krishna Ravinchandra

Institutional Recognition:

This remarkable achievement is a proud moment for APU, showcasing the exceptional innovation and talent within our community. It highlights the exemplary work of our postgraduate scholars and the dedicated guidance of Dipl.-Ing. Inv. Ir. Narendran Ramasenderan, Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal, and Krishna Ravinchandra from the Center for Research and Development of IoT. This accolade adds to the center's impressive track record, having won several international awards this year for their GenAI drone solution for disaster response. It underscores the quality and excellence of the engineering programme at APU.

Ir.Narendran Ramasenderan (left) and Muhammad Ahmed (right) at the event before the finals

Prof. Ir. Eur. Ing. Ts. Dr. Vinesh Thiruchelvam, Chief Innovation & Enterprise Officer, remarked, "This award lauds the capability of APU talents to rise to the occasion and generate innovations in line with industrial needs. It demonstrates their ability to address real industry-relevant issues, making them highly sought after by Malaysian tech employers." Dipl.-Ing. Inv. Ir. Narendran Ramasenderan added, "The solution we built at Iotech Solutions was meant to digitize electrical inspection and utilize generative AI to complement the sensor fusion capabilities of edge compute wearables, which have seen a quantum leap in miniaturized compute capabilities."

As we reflect on the groundbreaking achievements of Muhammad Ahmed and the Maviglasses project at the Powering Your Innovation competition, we look forward to continued contributions to the fields of aviation, aerospace, and mechanical engineering. This victory underscores the transformative power of collaboration, innovation, and dedication to addressing real-world challenges.

The whole powering your innovation team.

From left Mr.Krishna Ravinchandra , Assoc. Prof. Ts. Dr. Sathish Kumar Selva Perumal, Dipl-Ing.Inv.Ir Narendran Ramasenderan , Muhammad Ahmed and

Prof. Ir. Eur. Ing. Ts. Dr. Vinesh Thiruchelvam

The winner from the other categories and Ahmed (third from right)

IDEA EXPO & 1IDEA1WORLD 2024

Asia Pacific University (APU) is thrilled to celebrate the outstanding achievements of 3 students, Ng Joo Kiat, Cajun Tai Ka Joon, and Ang Jia Ze for their innovative SARVIDROS (Search and Rescue Vision Drone System) project. This cutting-edge project, which builds upon their successful 2023 RESCUEAI disaster drone initiative, has been further developed by integrating a bespoke large language model with the open-source LLama 2 framework and enhanced with Azure Digital Twin for advanced data analytics. This enhancement allows the drone system to autonomously detect visual cues and execute missions that reduce the impact of disasters significantly, thereby safeguarding lives and property.

This advanced system has been enriched with AI-powered data analytics, providing the SARVIDROS drone with superior intelligence and autonomous operational capabilities, enabling it to conduct intricate rescue operations with unprecedented efficacy and efficiency. The project's success at international levels has brought it two prestigious gold medals from the IDEA-Expo 2024 in Hungary and the 1Idea1World 2024 in Turkey, marking significant recognitions in the field of disaster management technology.

Additional Accolades Received:

- **IDEA Expo 2024 Excellence Award** from Hungary, acknowledging their exceptional innovation.
- **Excellence in Innovation Award Certificate** from the Romanian Inventors Forum.
- **Award of Excellence** from the Canadian Inventors College Organization (ICO).
- **Special Award** by the Turkish Inventors Association (TÜMMİAD)
- **Special Award** by the World Invention Intellectual Property Associations (WIIPA)

These accolades are a testament to Asia Pacific University's commitment to harnessing avant-garde technology to tackle global challenges, solidifying its reputation as a beacon of innovation and academic excellence. Under the guidance of Dipl-Ing.Inv.Ir. Narendran Ramasenderan, Hema Latha Krishna Nair, and Krishna Ravinchandra at the Center for Research and Development of IoT (CREDIT) and the Asia Pacific Centre Of Analytics (APCA), these students continue to drive technological progress and make substantial contributions to societal welfare. Their efforts highlight their technical expertise and underscore the potential of young innovators to effect meaningful change globally.

Leadership and Vision: The strategic vision and leadership of Prof. Vinesh Thiruchelvam, the architect behind both centers, have been crucial in propelling APU to the forefront of technological innovation and academic distinction. The university's unyielding commitment to fostering innovation and academic excellence is reaffirmed through these international successes, ensuring its status as a leading institution in the realm of IoT and advanced technological solutions.

YOUNG SCIENTIST NETWORK -ACADEMY OF SCIENCES MALAYSIA COLLOQUIUM

Dr. Reena was chosen as one of the experts to contribute towards National Level competition organised by Malaysian Biotechnology Information Centre (MABIC) and funded by MITRA. The programme was initiated by Ts. Dr. Mahaletchumy Arjunan (World's Top 100 Influential People in Biotech), and Dr Rahim Munna (UKM) – Crimologist. Nation's leading 10 experts from STEM related fields were united under one roof in Putrajaya. Dr. Reena contributed her part in developing engineering related questions.

FUSION 360

19th February 2024

The APU IMechE SC and APCORE collaborated in organizing the Fusion 360 Workshop, which took place on February 19, 2024. It was billed as an investigation of digital design and computer-aided design (CAD) via the Fusion 360 perspective. The workshop, which took place at the APU Campus, sought to provide attendees with the skills and information they needed to unleash their creativity and turn concepts into workable prototypes. From beginners to experienced designers, there was a lively crowd at the start of the event, all excited to explore Fusion 360's potential. Under the direction of skilled facilitators, the participants set out to explore the features and functionalities of the program, and to realize its potential to completely transform the creative process.

Participants explored 3D modelling and digital prototyping approaches while learning how to use Fusion 360's user-friendly interface through the workshop and hands-on activities. The workshop offered priceless insights into utilizing Fusion 360 as a potent tool for creativity and problem-solving, from conception to execution.

Participants were able to share ideas and thoughts with their colleagues in a collaborative and knowledge-sharing environment that was encouraged by the workshop. Real-world case studies and hands-on demos enhanced the learning process even more by showcasing the varied industries in which Fusion 360 is used.

At the end of the class, participants had gained inspiration and newfound skills to confidently take on their digital design endeavors. As guests left with a greater knowledge of Fusion 360's ability to realize their creative ambitions, the event ended with a feeling of success and unity. In conclusion, the APU IMechE SC and APCORE-organized Fusion 360 Workshop was a huge success, inspiring participants to push the envelope of creativity and igniting a passion for digital design. The course made a lasting impression on everyone who attended with its dynamic content and hands-on approach, opening doors for further research and investigation in the exciting field of CAD and 3D modelling.

ELECTRICAL MACHINES HANDS-ON WORKSHOP - 14th May 2024

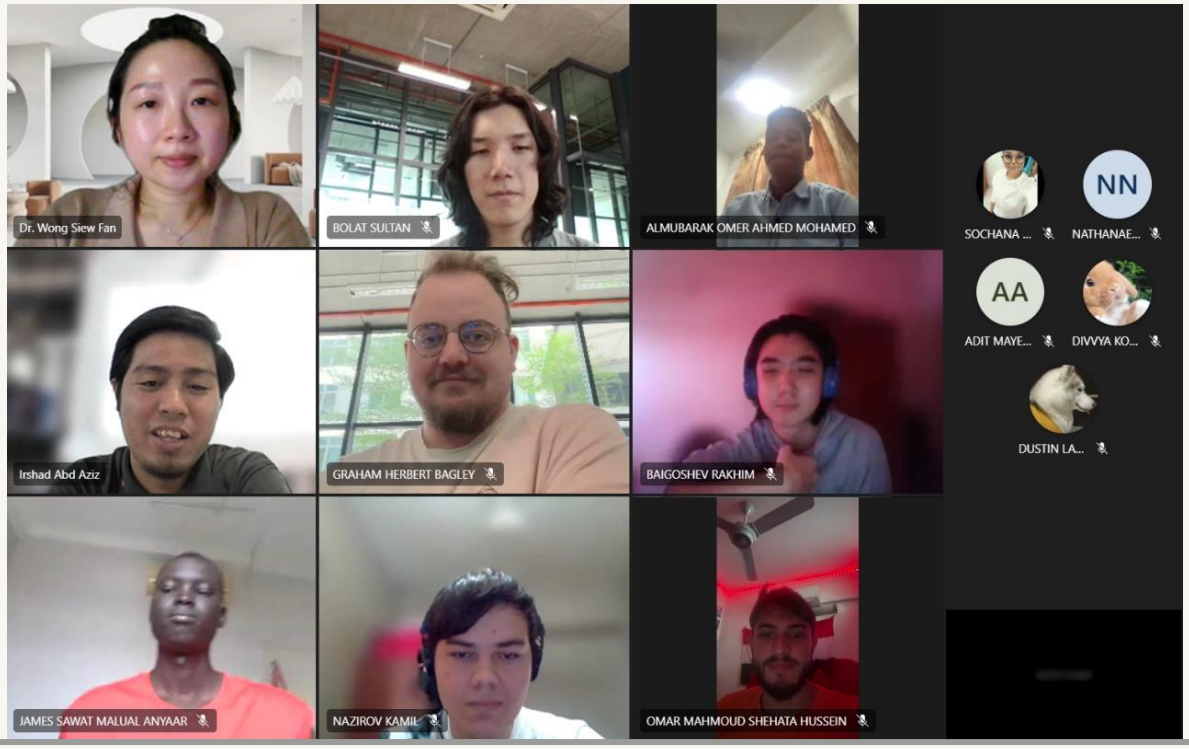
Electrical Machines hands-on Workshop with Topic: Transformer & Induction motors operation and handling was held on Date: 14th May 2024, from 1.30 pm to 4.30 pm was conducted physically at B-03-Power Lab by Trainer: Mr. Ravi Lakshmanan.

The energy conversion from electrical to mechanical power is done by induction motors and transfer of electrical power is done by transformers. Electrical machines can be used for different ranges of speed and as a motor particularly in home appliances as well as in industries. Electric machines are essential systems in electric vehicles and are widely used in other applications. In particular, induction motors have been extensively employed in domestic appliances and industries. Transformers are extensively employed in transmission and distribution of electrical power. This workshop helps the students to know about the transformer and induction motor in terms of their operation, working principle, characteristics, and applications.

SPE COMPUTER AND TECHNOLOGY SERIES (SPECTRE) 2024
PYTHON BASIC WORKSHOP
15th JUNE 2024

On Saturday, 15th June 2024, the Asia Pacific University Society of Petroleum Engineers Student Chapter, under the guidance of their advisor **Dr. Wong Siew Fan**, successfully organized the Spectre 2024 Python Basics Workshop. The event took place both online via MS Teams and in-person at the APU Engineering Design Lab, providing flexible participation options for attendees.

The primary objective of the workshop was to equip students with a solid foundation in Python programming, enhancing their coding skills through hands-on learning. The event was designed for beginners eager to dive into coding, offering essential Python knowledge and practical experience under the expert guidance of **Mr. Irshad Abd Aziz**, a lecturer from the School of Engineering. The workshop attracted around 25 participants who benefited from Mr. Irshad's clear and comprehensive instruction.



Key topics covered during the workshop included:

- **Basic Programming Concepts**: Understanding input and output operations.
- **Arithmetic Operations**: Performing fundamental arithmetic calculations in Python.
- **Control Structures**: Utilizing conditional and repetition statements for effective programming.
- **Functions**: Learning how to create and use functions to organize code.
- **Lists**: Managing collections of data using lists.
- **Strings**: Manipulating text and string data effectively.

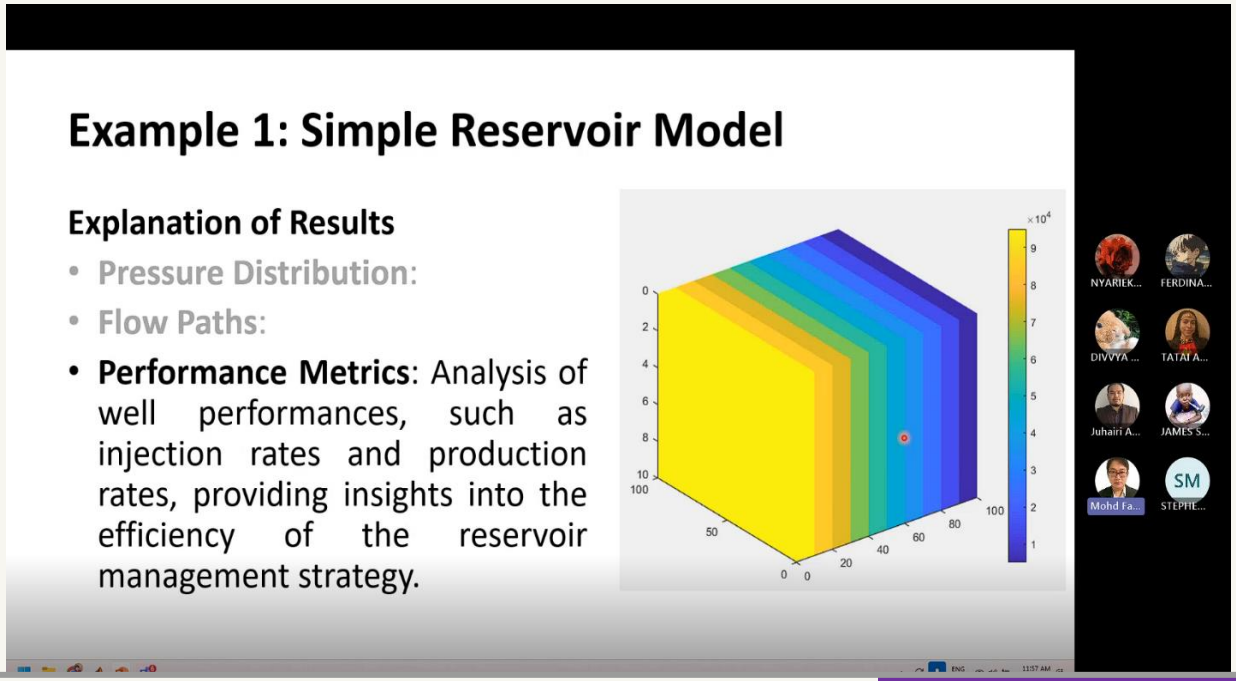
The interactive session concluded with participants tackling four sets of exercises, allowing them to apply their newly acquired knowledge and solidify their understanding of Python basics.

The Spectre 2024 Python Basics Workshop was a resounding success, providing attendees with valuable skills and confidence to continue their coding journey. The Asia Pacific University Society of Petroleum Engineers Student Chapter looks forward to organizing more such enriching events in the future.

SPE COMPUTER AND TECHNOLOGY SERIES (SPECTRE)
MATLAB – MRST WORKSHOP
29th JUNE 2024

On Saturday, June 29th, 2024, the Asia Pacific University Society of Petroleum Engineers Student Chapter, under the guidance of **Dr. Wong Siew Fan**, successfully hosted the SPECTRE 2024 MATLAB – MATLAB Reservoir Simulation Toolbox (MRST) Workshop. Held online via MS Teams, the event provided an accessible platform for attendees to gain valuable skills and knowledge in MATLAB and MRST Simulation fundamentals.

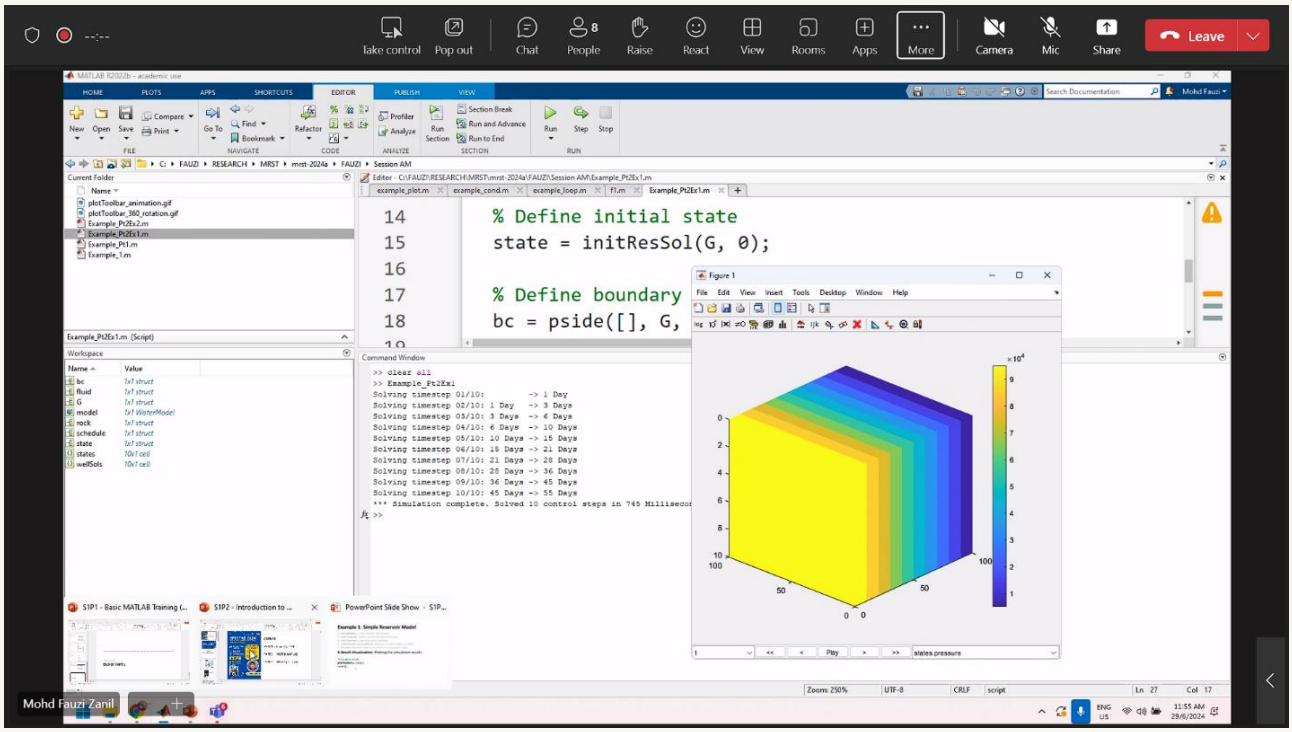
Led by **Mr. Fauzi Zanil**, a lecturer from the School of Engineering, the workshop connected theoretical principles with practical applications, offering a fantastic learning opportunity. Designed for both beginners and those looking to refresh their expertise, the session ensured a thorough overview of the tools provided. Mr. Fauzi's step-by-step approach and clear explanations made the content accessible, even to those new to coding. This comprehensive training style was particularly beneficial to beginners, allowing them to build confidence and proficiency in their new skills.



A highlight of the workshop was the focus on reservoir modeling plots. Mr. Fauzi provided in-depth information on processes and techniques used in reservoir modeling, addressing both fundamental ideas and sophisticated methodologies. This thorough understanding of reservoir modeling is crucial for students to grasp the intricacies and significance of this component in the oil and gas sector.

Mr. Fauzi also covered advanced reservoir modeling methods, including the two-phase method and the SAIGUP (Sensitivity Analysis of the Impact of Geological Uncertainty on Production) approach. This detailed exploration equipped participants with the tools and knowledge needed to tackle complex reservoir modeling challenges effectively.

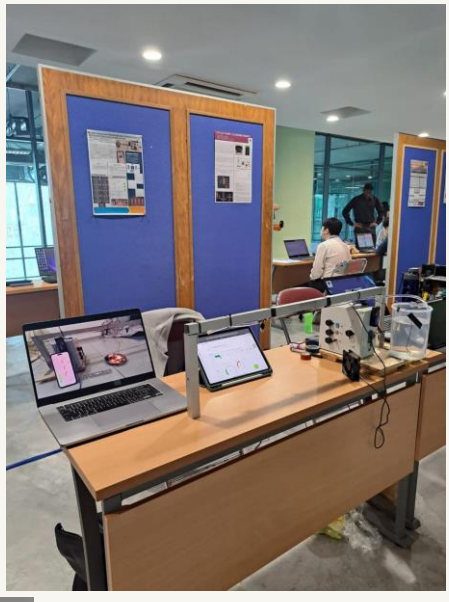
Overall, the SPECTRE Workshop Series continues to make significant contributions to the field by enhancing technological proficiency in the oil and gas sector. The MATLAB – MRST Workshop proved to be a valuable educational experience, providing participants with essential skills and a deeper understanding of reservoir modeling, crucial for advancing their careers and contributing to the industry's development.



FYP PRESENTATION

19th Jan 2024

Final year engineering projects were on display during the "FYP Presentation," which was presented on January 19 by the APU IMechE Student Chapter. Students displayed their creative work and gave it to judges to be graded. Projects from a variety of subjects, such as robotics and renewable energy, demonstrated the students' commitment and technical proficiency. Participants conversed with students, and assessors offered insightful criticism. The occasion encouraged teamwork, recognized academic achievements, and stimulated creativity among Engineers.



UNITY FUNDAMENTALS

26th AND 28th FEBRUARY 2024

The APU IMechE SC announced, and EXZELLENT PROFIS and TECZO organized the three-day intensive Unity Fundamentals course, which took place on February 26 and 28. The training's main objective was to give participants a thorough understanding of Unity and the abilities they would need to use the Unity game development platform with ease.

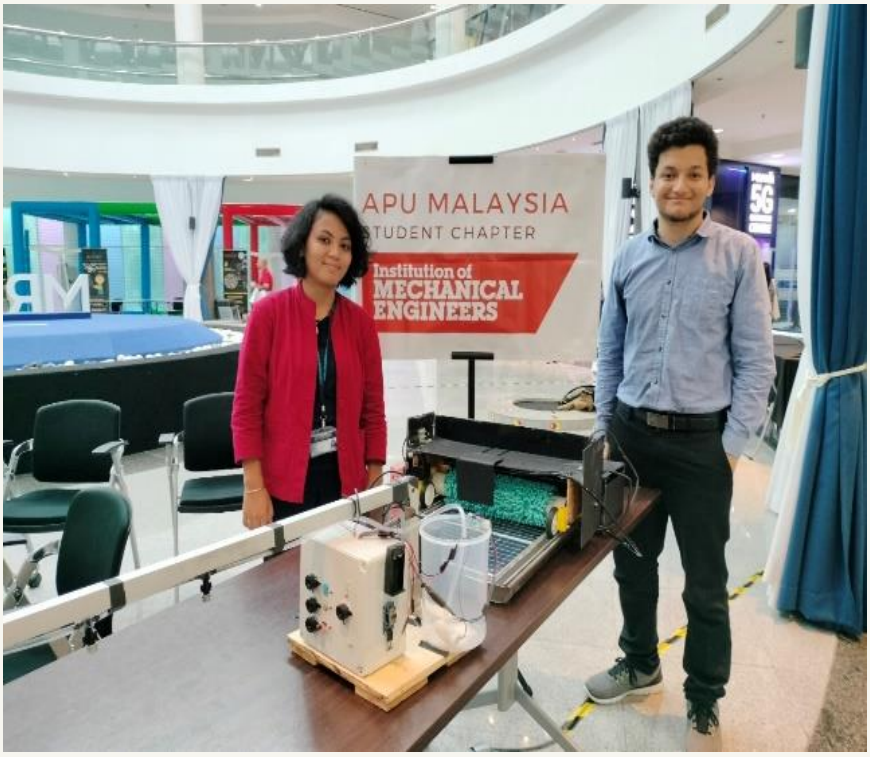
Modules Covered:

1. Introduction to Unity
2. Unity Basics and Components
3. Scripting Basics with C#
4. Intermediate Unity Concepts
5. Particle Effects
6. Game Objects and Components
7. Interaction and UI Elements
8. Animations
9. Visual Effects (VFX)
10. Assessment/Project

Participant-led, hands-on, practical sessions covering each module were led by knowledgeable teachers throughout the course. The course covered everything from learning the fundamentals of Unity to becoming proficient in C# scripting and delving into more complex subjects like animations and visual effects. It was designed to accommodate both newcomers and experienced Unity users.

The seminar on Unity Fundamentals was a great success, giving participants a strong foundation in Unity game creation. The workshop created a dynamic learning environment by integrating theory and real-world application, giving participants the confidence to start their Unity development adventure. APU IMechE SC, EXZELLENT PROFIS, and TECZO worked together to make sure the event ran smoothly, solidifying its standing as a useful tool for both industry pros and budding game creators.

AI TALK – MRANTI
17th March 2024



The APU IMechE SC and APCORE collaborated in organizing the AI Talk, which was held on March 7, 2024, at MRANTI in the midst of the exciting World Engineering Day festivities. Engineers, hobbyists, and business experts could explore the developments and applications of artificial intelligence (AI) in diverse fields at this event. Distinguished speakers discussed AI technologies, applications, and the changing face of AI-driven innovation. They offered their knowledge, perspectives, and experiences in this session. Participants also got the chance to participate in stimulating conversations and learn insightful viewpoints about the direction AI will take and how it would affect society.

After the thought-provoking talks, the APU IMechE SC displayed their creative engineering ideas at a special stand. The presentations included the Solar Panel Automatic Wiper and Fire Detector projects, both of which attracted a lot of interest. The opportunity to engage with the creators allowed attendees to gain personal knowledge of the complexities and features of these projects.

The booth offered a lively forum for information sharing where visitors may investigate the usefulness of engineering and artificial intelligence concepts in actual applications. The APU IMechE SC team sparked interest and encouraged more research into the field of engineering by showcasing the efficacy and potential of their projects through captivating demonstrations and thorough explanations.

In general, the AI Talk provided the engineering community with an engaging forum for networking, education, and teamwork. The event highlighted the critical role that artificial intelligence (AI) will play in influencing the direction of engineering and technology by bringing together experts, enthusiasts, and innovators in honour of World Engineering Day.

GDP PRESENTATION

4th April 2024

On Thursday, April 4, 2024, the APU IMechE Student Chapter organized the GDP Presentation at the Atrium Level 3 of Asia Pacific University. The event, which began at 10:00 AM, was an opportunity for students to showcase their Group Design Projects (GDP) to a broad audience that included fellow students, faculty members, and industry professionals. This presentation served as a platform for students to demonstrate their engineering skills, creativity, and the practical applications of their academic knowledge. The event commenced with an opening address by the organizing committee, highlighting the importance of GDP in the engineering curriculum. The Atrium was abuzz with excitement as various student groups prepared their presentations, setting up models, prototypes, and posters that detailed their projects. Throughout the morning, attendees had the chance to interact with the student presenters, who explained their projects in detail. These projects spanned a wide range of engineering disciplines, showcasing innovative solutions to real-world problems. Each group had meticulously prepared their presentations to communicate their project objectives, methodologies, outcomes, and the impact of their work.

Key highlights from the presentations included: 1. Innovative Mechanical Designs: Several groups presented mechanical systems and devices, demonstrating advancements in efficiency, functionality, and sustainability. 2. Technological Integrations: Projects incorporating modern technologies such as IoT, AI, and automation captured significant attention, reflecting the future-oriented mindset of the students. 3. Sustainable Engineering Solutions: A strong focus on sustainability was evident, with projects aimed at reducing environmental impact and promoting green engineering practices.

The event fostered a collaborative and inquisitive atmosphere, encouraging attendees to ask questions and provide feedback. This interaction not only benefited the presenters by offering new perspectives but also enriched the audience's understanding of contemporary engineering challenges and solutions. In conclusion, the GDP Presentation event was a resounding success, providing a valuable learning experience for both the presenters and the attendees. It highlighted the APU IMechE Student Chapter's dedication to promoting practical engineering education and fostering innovation among students.

CO2 SEQUESTRATION

15th APRIL 2024

On Monday, April 15, 2024, the APU IMechE Student Chapter, in academic collaboration with Asia Pacific University, organized an impactful event titled "Climate Change: The Real Nemesis - We Need to Implement CO_2 Sequestration." This event took place at APU, focusing on one of the most pressing issues of our time: climate change and the necessity of CO_2 sequestration to make our air cleaner. Running from 10:00 AM to 11:00 AM, the talk attracted a wide range of students and professionals keen to learn about cutting-edge solutions to mitigate climate change. The speaker for this event was Mr Juhairi Aris Muhamad Shuhili, who is an expert in environmental science and climate technology. The event began with an introduction to the critical role of CO_2 sequestration in combating climate change, outlining the science behind capturing and storing atmospheric carbon dioxide.

Mr. Juhairi started by explaining the various methods of CO_2 sequestration, including biological, geological, and technological approaches. He discussed the potential of natural solutions such as reforestation and soil carbon sequestration, emphasizing their importance in reducing greenhouse gas concentrations in the atmosphere. His presentation provided detailed insights into the latest research and developments in this field. He then delved into the technological innovations driving CO_2 sequestration efforts. He highlighted advanced techniques such as direct air capture, carbon capture and storage (CCS), and the utilization of captured CO_2 in industrial processes. The speaker also addressed the challenges and economic considerations involved in implementing these technologies on a large scale. Throughout the event, attendees were encouraged to participate actively, engaging with the speakers during the Q&A sessions.

This interactive format allowed for a deeper understanding of the complexities and potential solutions associated with CO_2 sequestration.

In conclusion, the event underscored the urgent need to implement effective CO_2 sequestration strategies to combat climate change. It provided valuable knowledge and inspiration for attendees to contribute to sustainable environmental practices. The APU IMechE Student Chapter demonstrated its commitment to addressing global environmental challenges through education and innovation.

ASIA PACIFIC UNIVERSITY SPE STUDENT CHAPTER JOINS SPE KL SECTION CHARITY EVENT - HARI RAYA CELEBRATION AT RAUDHATUL AL-FAEEZ ORPHANAGE - 3RD MAY 2024

Majlis Sambutan Hari Raya SPEKL; Rumah Anak Yatim dan Asnaf Raudhatul Al-Faeez

On 3rd May 2024, the Asia Pacific University Society of Petroleum Engineers Student Chapter (APU SPE SC), under the guidance of their advisor, **Dr. Wong Siew Fan**, participated in a heartwarming Hari Raya celebration at Raudhatul Al-Faeez orphanage. This event, organized in collaboration with the Society of Petroleum Engineers Kuala Lumpur Section (SPE KL), aimed to support those in need, give back to the community, and provide networking opportunities for industry members. The event also saw the participation of student chapters from various universities including University Malaya, Universiti Teknologi PETRONAS (UTP), Universiti Teknologi MARA, UCSI, and Universiti Malaysia Pahang.

Dr. Wong emphasized that the event fostered a sense of unity and belonging within the orphanage community through shared experiences and moments of camaraderie. "Additionally, it offered volunteers a deeper understanding of the challenges faced by the children, highlighting the importance of compassion, kindness, and giving back to society," she noted.

Ts. Anwarudin Saidu Mohamed, President of SPE Kuala Lumpur Section, along with the SPE KL team, underscored the importance of community service. They highlighted the significant impact the oil and gas sector can have by supporting education, healthcare, and environmental protection initiatives. In the spirit of fostering collaboration and enriching experiences, SPE KL actively engages with other student chapters to share insights and best practices. Events like these provide unique opportunities for SPE chapters to come together, exchange ideas, and learn from one another. This collaborative spirit not only enriches the student chapters with a wealth of collective knowledge but also strengthens bonds of camaraderie within the SPE community.

Promoting an open and inclusive communication culture encourages active participation and idea-sharing among student chapter members. This leads to more impactful and meaningful experiences for both volunteers and the orphanage residents. The presence of SPE student chapters from various universities at this event aimed to create a memorable experience that went beyond participation, fostering a spirit of togetherness and celebration during this special holiday. The event aimed to instill hope and happiness in the hearts of the orphanage residents, reminding them that they are cherished members of the community. By being present, volunteers hoped to inspire and uplift, reinforcing the values of compassion, generosity, and solidarity.

In conclusion, the Majlis Sambutan Hari Raya SPEKL event, with the participation of SPE volunteers, profoundly demonstrated the impact of collective action and community engagement. Through dedicated efforts, the volunteers shared the joy and festivity of the Raya celebration with the children, forging meaningful connections and friendships that transcended cultural and social barriers. The event also served as a platform for interaction, fostering understanding, empathy, and mutual respect among volunteers and orphanage residents alike.

SEEDING FUTURE: APUSPESC PLANTS TREES AND CULTIVATES A GREENER TOMORROW

25Th MAY 2024

On a bright Saturday, May 25th, 2024, 15 dedicated members of the Asia Pacific University Society of Petroleum Engineers Student Chapter (APUSPESC) embarked on a Community Social Responsibility mission aimed at fostering a greener future. Guided by their advisor, **Dr. Wong Siew Fan**, the students partnered with the Free Tree Society at Taman Tugu for a tree planting event that combined education with hands-on environmental stewardship.

The event commenced with an engaging forest tour led by a knowledgeable guide, who introduced the students to the diverse plant life within the forest. This immersive experience highlighted the critical importance of preserving these ecosystems, setting the stage for the day's activities.

Following the tour, a second guide conducted a practical workshop on seed planting. The students, equipped with new knowledge, divided into teams to prepare the soil, an exercise that emphasized the effort and care required to nurture new life. Each student then had the opportunity to plant a seed, marking a tangible contribution to the environment and instilling a deep sense of accomplishment and responsibility.

These talented next-generation petroleum engineers are motivated by a desire for a better environmental preservation.

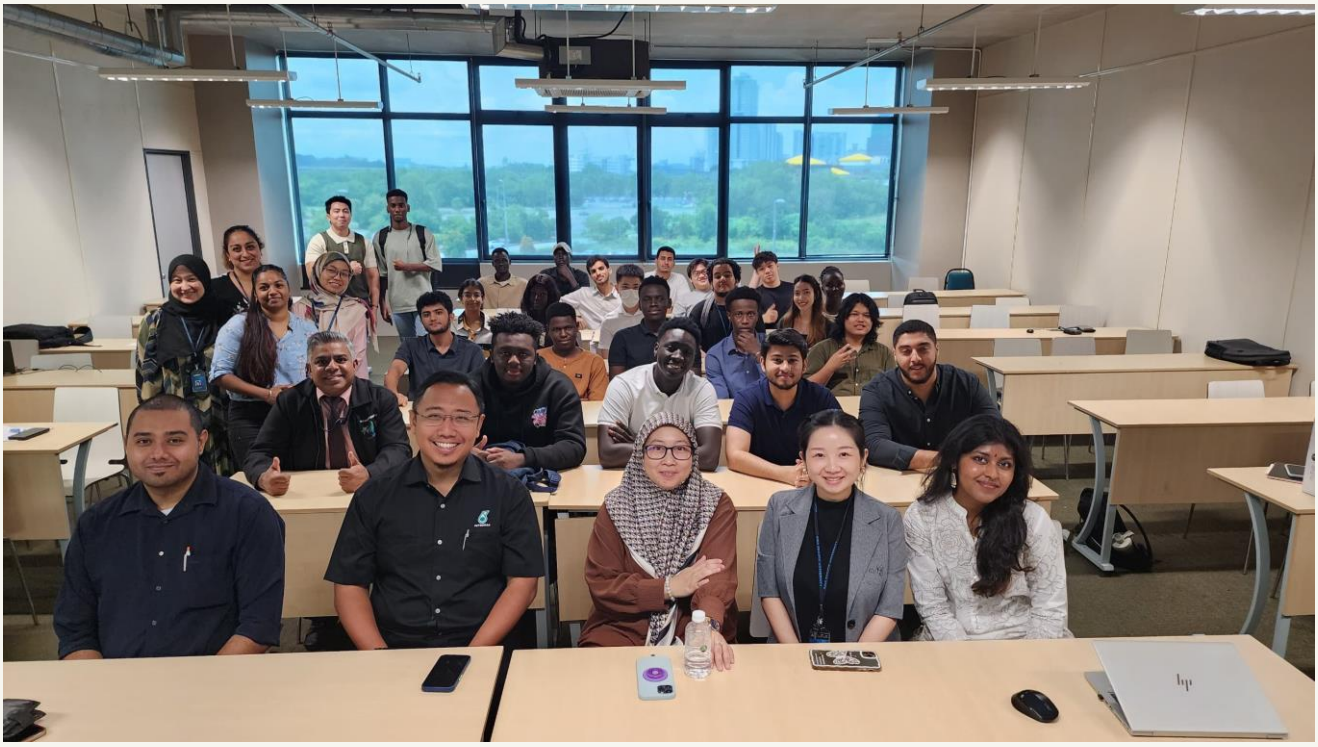
The event concluded with a compelling message on the significance of sustainable practices such as reducing, reusing, and recycling, reinforcing the participants' commitment to ongoing environmental stewardship. Dr. Wong Siew Fan praised the students' dedication, noting, "It was amazing to see the dedication of our students. Their commitment to creating a greener future is truly inspiring. The students echoed this sentiment:

Levi Louis Mark expressed his enthusiasm, saying, "It was fantastic to be a part of the tree planting event! Working alongside my fellow APUSPESC members and Dr. Wong was a lot of fun, and feeling like we're making a positive difference for the planet is truly rewarding."

- **Sami Iqbal Sufi** shared his satisfaction, stating, "I'm so glad I participated in the tree planting trip. It was inspiring to see everyone's dedication to creating a greener future. Knowing we planted trees that will provide shade and clean air for generations to come is a great feeling."
- **Divvya Kouyuska** highlighted the event's impact, saying, "The tree planting event with APUSPESC was a fantastic way to spend the day. It was a great combination of teamwork, environmental awareness, and a whole lot of fun! I'm already looking forward to the next opportunity to give back to the planet."

PETROLEUM ENGINEERING LECTURE SERIES

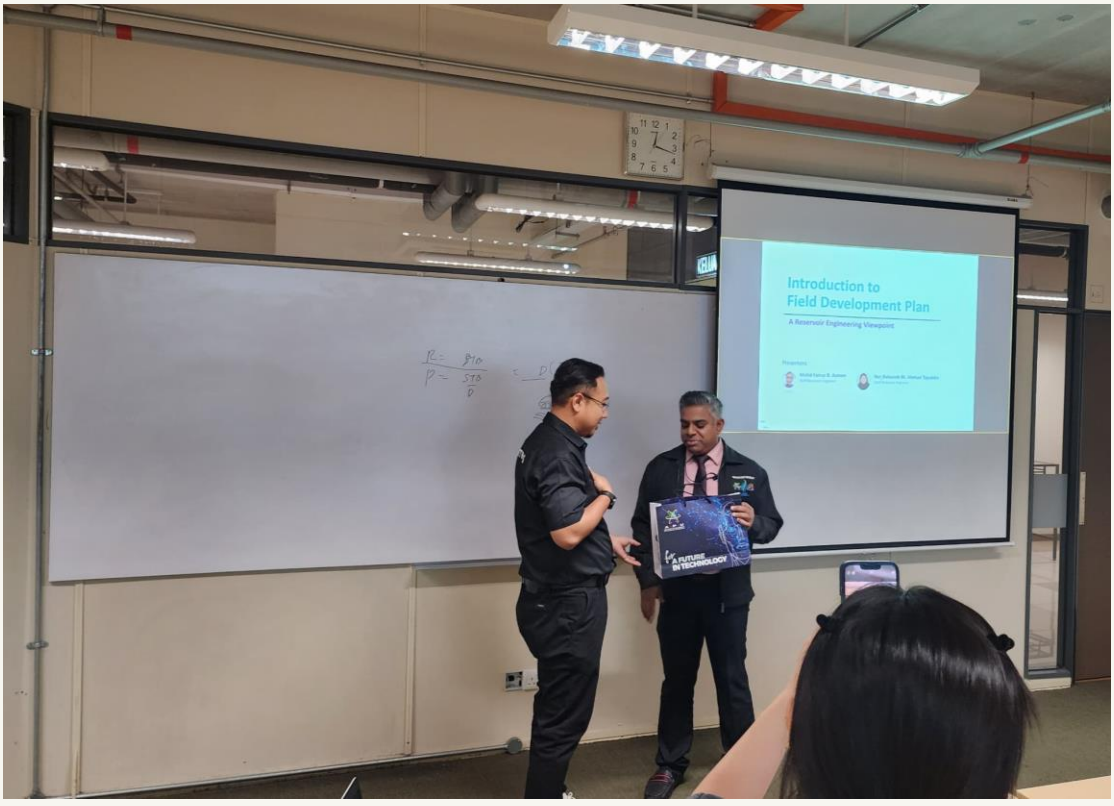
21st June 2024



On June 21, 2024, the second Petroleum Engineering Lecture Series was successfully organized by the SPE APU Student Chapter under the CHESS collaboration between APU and PETRONAS. The event was initiated by **Dr. Wong Siew Fan**, the advisor of the SPE APU Student Chapter, who invited two Staff Reservoir Engineers, **Mr. Mohd Fairuz Azman** and **Ms. Nor Baizurah Ahmad Tajuddin** from PETRONAS, to conduct the lecture series on the topic of Field Development Plan (FDP) in the oil and gas industry. Both speakers are industry experts with extensive knowledge in field development, and their session provided a comprehensive overview of FDPs, which are crucial roadmaps for optimizing the extraction of oil and gas reserves.

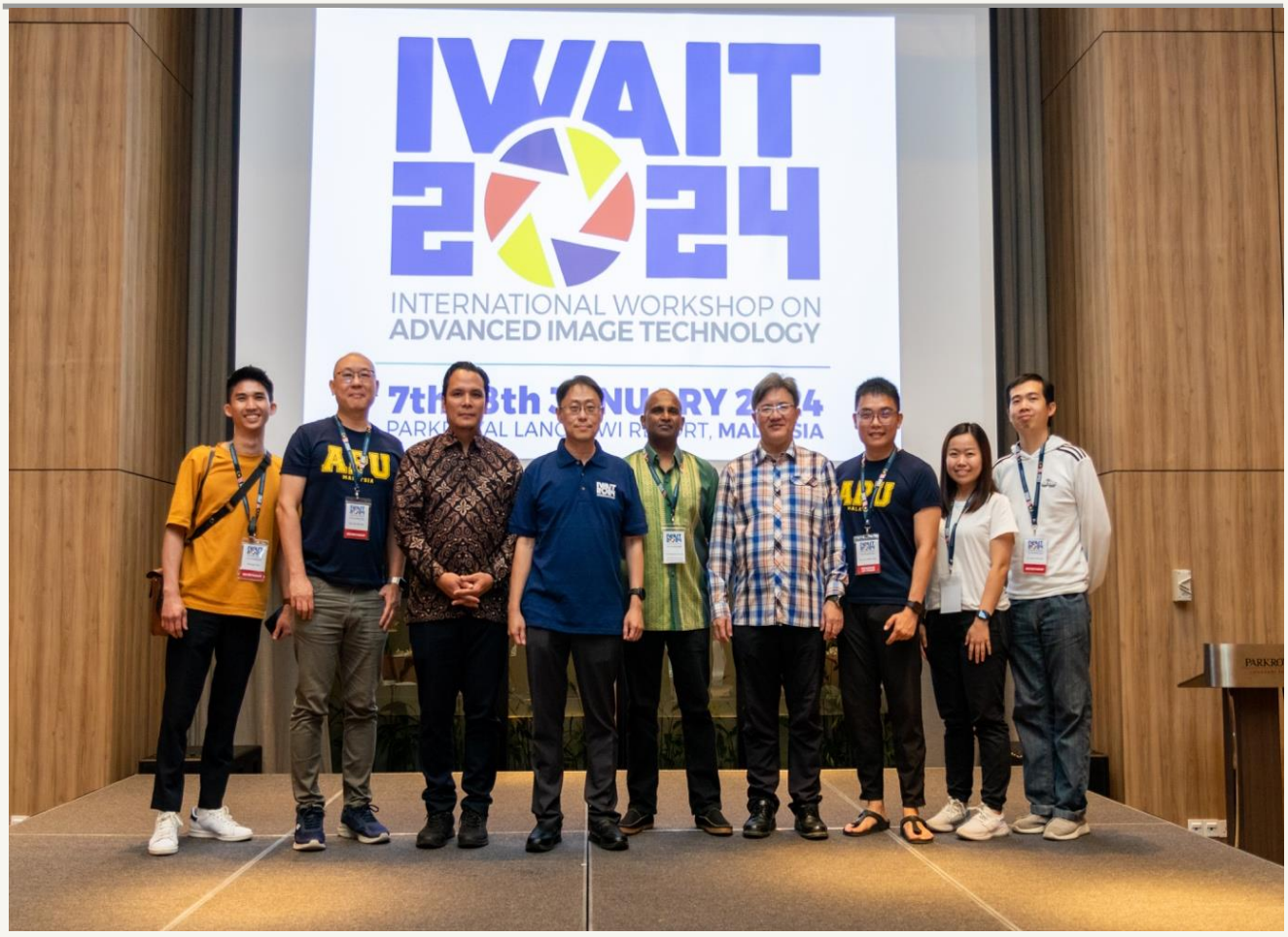
The breakdown of the key topics delivered by the guest lecturers:

- Well Performance Monitoring: Mr. Azman emphasized the importance of continuously monitoring performance. This data is essential for understanding reservoir behavior, optimizing production strategies, and identifying potential issues. Advancements in downhole sensors and real-time data analysis are revolutionizing performance monitoring. These technologies enable engineers to make data-driven decisions and maximize production efficiency. The lecture outlined the critical steps involved in crafting a successful FDP. These include reservoir characterization, well placement optimization, production forecasting, and economic evaluation.
- Resource Estimation: Ms. Baizurah delved into the fascinating world of resource estimation, a fundamental aspect of FDPs. This process involves using geological and engineering data to determine the amount of recoverable oil and gas in a reservoir. New techniques such as seismic inversion and machine learning are enhancing the accuracy and reliability of resource estimation, leading to more efficient development plans.
- Reservoir Simulation: Ms. Baizurah also shed light on reservoir simulation, a powerful tool used to model reservoir behavior over time. These simulations help engineers predict production rates, assess the effectiveness of different recovery methods, and optimize field development strategies.



The event concluded with **Prof. Ir. Eur. Ing. Ts. Dr. Vinesh Thiruchelvam**, APU Chief Innovation & Enterprise Officer, delivering a closing speech and presenting tokens of appreciation to the guest lecturers.

CHARTING THE FUTURE OF IMAGE TECHNOLOGY HIGHLIGHTS FROM IWAIT 2024 IN LANGKAWI



The International Workshop on Advanced Image Technology (IWAIT) 2024, orchestrated by Asia Pacific University of Technology and Innovation (APU), took place on January 7-8 in Langkawi, Malaysia. This conference stood out as a premier event for experts in the interdisciplinary field of advanced imaging, attracting over 200 attendees, including researchers, engineers, and students, who gathered to discuss the future of image technology.

At the helm, Prof Dr Ho Chin Kuan, Vice Chancellor of APU and the conference's General Chair/Finance Chair, provided strategic direction, ensuring the event not only met but also exceeded its ambitious goals..

The conference program was meticulously organized by Ir Eur Ing Ts Dr Lau Chee Yong, the Program Co-chair/Poster Session Chair, who is a Senior Lecturer from the School of Engineering at APU. The secretary team, including Prof Ts Dr Murali Raman, Assoc Prof Dr Tan Chin Ike, Dr Kuan Yik Junn, Ms Tan Li June, Mr Nicholas Teh Sek Kit, Ts Nur Zahdi bin Mohd Nor Aldin and Mr Neoh Hoo Thye, played an instrumental role in the conference's organization and execution.

The co-organizing institutions brought an international flavor to the conference, with the Korean Institute of Broadcast and Media Engineers (KIBME), Institute of Electronics Information and Communication Engineers (IEICE), Institute of Image Information and Television Engineers (ITE), Japanese Society of Precision Engineering (JSPE-IAPI), and the National Science Council (NSC) of Taiwan all contributing to the workshop's diversity and reach.

INDUSTRY VISIT TO PUTRAJAYA ENERGY COMMISSION

28th MAY 2024

On May 28th, 2024, a group of students from the Electrical & Electronic Engineering (EEE) Program visited the Putrajaya Energy Commission. This visit, arranged by **Dr. Hazwani Mohd Rosli**, highlighted the innovative design and sustainable features of the Energy Commission building, often referred to as the "Diamond Building" due to its unique shape and architectural brilliance. The visit aimed to provide insights into the building's energy-efficient design, advanced environmental features, and how these contribute to the overall sustainability goals of Malaysia.

The Diamond Building – Design Strategy:

The Diamond Building's unique diamond shape is more than an architectural statement; it is a feat of structural engineering. Its distinctive diamond shape is not just an aesthetic choice but also serves several practical purposes, including energy efficiency and environmental protection. The design encapsulates the following key elements:

- **Energy Efficiency:** The building's shape and orientation are optimized to reduce energy consumption. Its tilted façade maximizes natural daylight while minimizing heat gain, contributing to significant energy savings. The building achieves an impressive Building Energy Index (BEI) of 85 kWh/m²/year, reflecting its efficiency in energy use.

- **Water Efficiency:** The Diamond Building incorporates several water-saving features, such as rainwater harvesting systems and efficient water fittings. These systems reduce potable water use and enable the recycling of greywater for irrigation purposes.

- **Indoor Environmental Quality:** The interior environment of the building is designed to enhance occupant comfort through thermal control and noise reduction. Radiant cooling systems embedded in the concrete slabs maintain a consistent and comfortable temperature, while the use of materials with low Volatile Organic Compounds (VOC) ensures a healthy indoor air quality.
- **Sustainable Materials:** The construction of the building prioritizes the use of sustainable and recycled materials. From green-labelled plasterboards to floor carpeting with low VOC emissions, the materials chosen to contribute to the building's overall sustainability profile.
- **Energy Systems Engineering:** One of the most impressive aspects of the Diamond Building is its integration of advanced energy systems, which are designed to achieve high levels of efficiency and sustainability. Key features include:.
- **Photovoltaic Panels:** The building is equipped with thin-film photovoltaic (PV) panels that generate approximately 102.0 kWp of electricity. These PV panels are strategically placed to maximize solar energy capture while maintaining the aesthetic integrity of the building.
- **Radiant Cooling:** Instead of traditional air conditioning, the Diamond Building employs a radiant cooling system embedded within the concrete slabs. This system uses chilled water pipes to cool the building efficiently, reducing energy consumption and enhancing thermal comfort.

- **Building Automation Systems:** The Diamond Building utilizes a sophisticated building automation system (BAS) to control and optimize energy use. This system integrates various subsystems, including lighting, HVAC, and security, allowing for real-time monitoring and adjustments to improve efficiency.
- **Daylighting and Artificial Lighting Integration:** The engineering team optimized the building's lighting design to maximize daylight penetration and reduce artificial lighting needs. This includes the use of large, low-emissivity windows and internal light shelves that distribute natural light deeper into the building's interior spaces.
- The visit to the Putrajaya Energy Commission's Diamond Building provided an in-depth look at how engineering innovation can lead to significant advancements in sustainable building design. The engineering principles applied in the Diamond Building's construction and operation set a high standard for future developments, demonstrating that sustainability and functionality can go hand in hand.

Thanks to all Engineers and Young, upcoming Future Engineers of SOE TEAM (APU) for their valuable contributions.

Awards, Achievements, workshop , SOE events and Industrial visit will be Never Ending……. Meet you All in next Edition Dec 2024 .