In support of
NATIONAL DISASTER PREPAREDNESS MONTH
(Bulan Kesiapsiagaan Nasional)

Organised by:

IEM
The Institution of Engineers, Malaysia

The Disaster Risk Reduction Advisory Board
(DRRAB)

Supported by:

Agensi Pengurusan Bencana Negara
(NADMA)

WEBINAR ON:

HARNESSING AI FOR EFFECTIVE DISASTER MANAGEMENT

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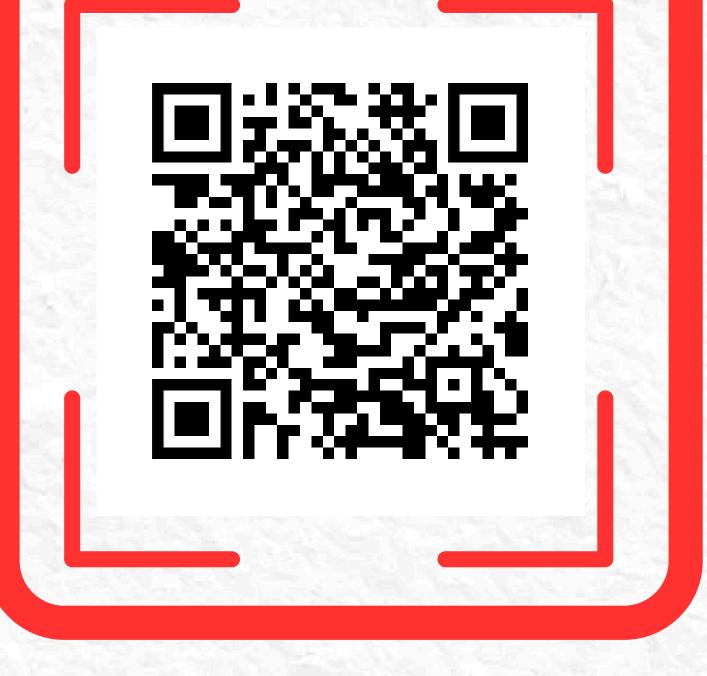
JKR'S EXPERIENCE IN SLOPE MANAGEMENT IN MALAYSIA

BEM APPROVED CPD: 2   CPD REF. NO.: IEM24/HQ/376/T (W)

REGISTRATION FEES:

- ☑ IEM STUDENT MEMBERS – FREE
- ☑ IEM MEMBERS – RM15
- ☑ NON IEM MEMBERS – RM70

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📅 **8 OCTOBER 2024, TUESDAY**
4.00 – 6.00 PM

📍 **ZOOM ONLINE**

SCAN ME

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Assoc. Prof. Ir. Dr. Ban Zheng Hong, with over 10 years of extensive industrial experience in modeling fluid dynamics and chemical processes, excels in safety evaluation and energy simulation, emphasizing the integration of artificial intelligence for energy reduction and sustainability. As an Assistant Professor in XMUM, he has taught courses on chemical process safety, modeling, and sustainable practices, and has delivered more than 10 industry-related CFD projects, including significant international projects from Singapore and Australia. These projects, particularly focused on gas dispersion and ammonia leaks, have been crucial in identifying emergency response and mitigation plans, highlighting his commitment to industrial safety, disaster preparedness, and sustainable development.

HARNESSING AI FOR EFFECTIVE DISASTER MANAGEMENT

In the realm of disaster management, the ability to predict and manage toxic gas dispersion is crucial for ensuring safety and minimizing risks. This talk delves into the innovative integration of Computational Fluid Dynamics (CFD) as part of Artificial Intelligence (AI) to revolutionize disaster management. Detailed simulations of toxic gas dispersion will be explored in various scenarios, from small confined spaces to expansive industrial plants and outdoor environments. The utilization of AI-driven CFD models provides invaluable insights into potential impact zones, enabling better preparation and response.

By integrating AI and CFD, we can accurately simulate toxic gas dispersion across multiple scales—from small rooms to large industrial plants and the surrounding environment. These simulations provide valuable insights into the behavior of hazardous gases, enabling chemical engineers to identify safe zones and design effective emergency response plans. This integration enhances the effectiveness of evacuation routes and shelter-in-place recommendations based on accurate dispersion data. Additionally, leveraging CFD within AI frameworks as a forensic tool allows for reconstructing accident scenarios, pinpointing sources, and understanding the causes of toxic gas releases. This critical data supports post-incident analysis and helps improve future safety protocols.

Our cutting-edge research on integrating machine learning with CFD will be highlighted, showcasing how AI can expedite the identification of toxic gas sources. This fusion of technologies enhances the accuracy and speed of dispersion modeling, aiding in quicker decision-making during emergencies. This innovative methodology will enhance our preparedness, response, and recovery capabilities in the face of chemical hazards. Through interdisciplinary collaboration and continuous advancements in technology, we can significantly improve our resilience to chemical disasters. Join us to explore how the synergy of AI and CFD is paving the way for more robust disaster management frameworks. This talk aims to inspire new approaches and foster discussions on leveraging advanced technologies for the greater good in industrial safety and environmental protection.

Dr. Mohamad Niizar is a senior civil engineer with a 21 years of professional experience, currently serving in the Malaysian Public Works Department (Jabatan Kerja Raya Malaysia). He is attached to the Slope Engineering Branch at the JKR Malaysia Headquarters. Dr. Niizar earned both his degree and master's in civil engineering from Kolej Universiti Tun Hussein Onn, Malaysia, and completed his PhD at Universiti Tun Hussein Onn Malaysia (UTHM) in 2020. His areas of expertise include slope engineering and maintenance, building maintenance and assessment, forensic engineering, geotechnics (soft soil), and marine engineering.

JKR'S EXPERIENCE IN SLOPE MANAGEMENT IN MALAYSIA

The Public Works Department (JKR) of Malaysia has extensive experience in slope management, particularly due to the country's unique topography and heavy rainfall, which can lead to slope instability and landslides. Cawangan Kejuruteraan Cerun (CKC), JKR as the custodian of the federal roads, have been tasked with management of slopes along the federal roads. In this talk, the presenter will share JKR's experience since 2004 in slope management involving development of guidelines and standards, slope assessment and monitoring, early warning system for slope, registration and hazard map development for slopes, corrective and preventive measures to stabilise slopes and public awareness campaigns to educate public and agencies on risk associated with slopes and landslides. Besides that, CKC JKR also appointed by the Cabinet as the Secretariat for the National Slope Master Plan which involves collaboration with different government agencies to improve slope management practices in Malaysia and share knowledge.