# Physical Talk On "Overhead Crane Hazards: Real Cases, Root Causes, And Prevention Strategies"

By

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The Safety in Engineering Special Interest Group (SESIG) of The Institution of Engineers Malaysia (IEM) has organised a physical talk on "Overhead Crane Hazards: Real Cases, Root Causes, And Prevention Strategies" on 31 March 2026 at Tan Sri Chin Fung Kee Auditorium at Wisma IEM, Petaling Jaya. The talk was presented by Ir. Nicholas Chee Kwok Shern, an engineering professional with experience in crane safety, design, operation, and maintenance. A total of 29 participants attended the talk on overhead crane hazards, where the participants were welcomed by Ir. Dr. Wong Chee Fui. Dr. Wong also introduces Ir. Nicholas Chee to the participants before the talk. Overhead cranes play a vital role in industrial operations, yet they remain one of the most common causes of serious workplace incidents. This talk offers a comprehensive, case-based examination of the hazards associated with overhead crane use and provides practical guidance for preventing them.

Ir. Nicholas Chee presented a comprehensive overview of safety issues related to overhead crane operations, with a strong emphasis on real-life incidents in Malaysia, which highlight practical lessons drawn from past accidents, identify recurring root causes, and outline structured prevention strategies to improve crane safety practices. A key feature of the presentation is the use of actual case studies from various locations in Malaysia, including Johor, Kuala Lumpur, Shah Alam, and Putrajaya. These cases reveal common crane accident triggers, such as structural failure due to overloading, mechanical malfunctions from poor maintenance, falling objects, improper rigging, and unsafe work zones, which can lead to crane collisions and exposure to electrical hazards.

The talk identifies eight primary root causes of crane accidents, supported by both local and global comparisons. While specific details of these causes are not exhaustively listed in the slides, the presentation emphasises root causes such as human error, equipment failure, insufficient inspection leading to equipment failure, worn or improperly selected rigging, poor communication between operators and signallers, incorrect load calculations, gaps in adherence to OSHA safety requirements and weak safety culture. The comparison between Malaysia and worldwide cases indicates that these risks are universal but can be mitigated through stricter adherence to safety standards and better operational discipline. An overview of overhead crane types, including monorail, jib, bridge, and gantry cranes, was presented to establish a foundational understanding.

Ir. Nicholas Chee also explains key crane components such as girders, hoist systems, control panels, travelling motors, crane rails, and safety features like rubber bumpers and busbar lines. This technical overview helps participants appreciate how different parts contribute to the crane's overall functionality and potential hazard points. The presentation explores crane hazard profiles through case studies, illustrating the broader “ripple effects” of accidents, including operational disruption, financial loss, reputational damage, and legal implications. It emphasises proactive risk management over reactive responses. A key focus is the “Prevention Matrix,” which integrates mechanical maintenance, engineering controls, training, safety culture and administrative measures. Regular inspections, such as pre-operational, routine, and periodic inspections, are underscored, alongside compliance with statutory requirements such as annual PMA certificate renewal by DOSH (JKKP).


The session also highlighted “Four Pillars of Safe Lifting,” reinforcing that most crane accidents are preventable through proper maintenance, competent inspections, correct operation, and a strong safety culture. Through this talk on overhead crane hazards, the participants learnt the practical strategies to strengthen crane safety, proper rigging selection and inspection, establishing safe work area, improving operator competency, and implementing preventive maintenance programs. The session also emphasizes how near-miss reporting, job hazard analysis, and safety culture improvements can significantly reduce accident potential. The participants have engaged in an active questions and answers session, where the concerns from the participants were addressed by Ir. Nicholas Chee.


The talk concluded with a token of appreciation presented by Ir. Dr. Wong Chee Fui to Ir. Nicholas Chee, in recognition of his valuable sharing session. Overall, the talk provided valuable insights to the participants on the overhead crane hazards with the actual cases studies, root causes and prevention strategies. IEM SESIG is a Special Interest Group that actively organised activities, talks, courses and workshops related to safety in engineering for IEM members and actively represented IEM to the various external organisations on issues related to safety in engineering.


OVERHEAD CRANE HAZARDS.
Real Cases, Root Causes, and Prevention Strategies