Physical Half-Day Seminar on Pump Fundamentals: System Components, Performance Optimisation, and Practical Applications for Engineering Students, Graduate and Water Utility Professional Engineers.

By

Ir. Ts. Sukhairul Nizam Abdul Razak

IEM Council Member 2025/2026

The Institution of Engineers, Malaysia (IEM), through the Engineering Education Technical Division (E2TD), successfully organised a Physical Half-Day Seminar titled “Pump Fundamentals: System Components, Performance Optimisation, and Practical Applications for Engineering Students, Graduate and Water Utility Professional Engineers.” The event was held on Saturday, 10 May 2025, at the C&S Lecture Room, Wisma IEM, Petaling Jaya, and featured Ir. Ana Miraa Mohd Yusof, Grundfos Flood Control Solution Manager.

The programme was designed to equip engineering students, graduate engineers, and water utility professionals with a comprehensive understanding of pump systems, from fundamental principles to advanced performance optimisation and real-world application. The seminar provided participants with crucial knowledge for designing, analysing, and maintaining efficient pumping systems, which are vital for national water supply, flood mitigation, and irrigation.

In her presentation, Ir. Ana Miraa began by establishing a strong foundation, covering pump definitions, classifications, and the critical interpretation of pump performance curves (Q-H), efficiency, and Net Positive Suction Head (NPSH). She then delved into the intricacies of the entire pumping system, explaining how components such as atmospheric pressure, liquid characteristics, and pipe losses contribute to the Total Dynamic Head (TDH).

Ir. Ana Miraa explaining pump performance characteristics during the seminar.

She further elaborated on the practical application of this knowledge through system characteristic curve computation and pumping station design case studies. She demonstrated how the Affinity Laws can be applied to optimise pump performance, thereby reducing energy costs and improving operational efficiency. Drawing from her 25 years of experience, she provided invaluable consultancy-level insights, bridging the gap between theoretical knowledge and on-the-ground engineering challenges faced by water authorities and consultants.

Among the key takeaways was the emphasis on a holistic approach to pump station design, where understanding the interaction between the pump and the system is paramount for achieving reliability and sustainability. The session also sparked engaging discussions during the Q&A segment, where participants explored solutions to specific challenges encountered in their professional work.

Explaining the reliability and sustainability of the pumps during Q&A session.

Overall, the event was a resounding success, providing attendees with actionable skills and deep technical insights directly applicable to their academic and professional pursuits. It also reinforced IEM E2TD’s commitment to advancing engineering education and supporting the continuous professional development of engineers in Malaysia, thereby contributing to the nation's infrastructure and water security.

ORGANISED BY:
ENGINEERING EDUCATION TECHNICAL DIVISION, IEM

Physical Half Day Seminar on

Pump Fundamentals: System Components, Performance Optimization, and Practical Applications for Engineering Students, Graduate and Water Utility Professional Engineers

BEM APPROVED CPD: 4 REF NO: IEM25/HQ/107/C

Date : 10 May 2025 (Saturday)
Time : 9.00 am - 1.00 pm
Venue : C&S Lecture Room, 2nd Floor, Wisma IEM, Petaling Jaya
Speaker : Ir. Ana Miraa Mohd Yusof

CLOSING DATE : 26 APRIL 2025

REGISTRATION FEE'S (subject to 8% SST)		
	ONLINE FEE (NON HRDF Claimable)	NORMAL FEE (HRDF Claimable)

Poster for the seminar