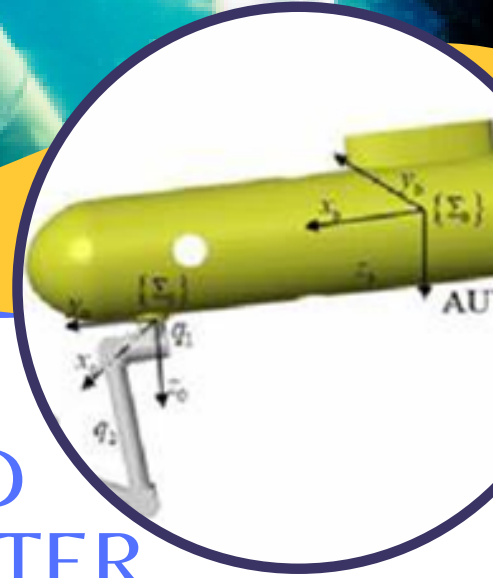


Webinar Talk on

# DESIGN, MODELING AND CONTROL OF UNDERWATER MANIPULATORS



BEM APPROVED CPD: 2

REF NO: IEM24/HQ/089/T (w)

**ORGANISED BY:**

**MARINE ENGINEERING AND NAVAL ARCHITECTURE TECHNICAL DIVISION, IEM**

**SPEAKER:**

**Ir. Ts. Prof. Dr Mohd Rizal bin Arshad**

 27 APRIL 2024, SATURDAY

 11.00AM - 1.00PM

**REGISTRATION FEE**

**IEM STUDENT : FOC**

**IEM MEMBERS: RM15**

**NON IEM MEMBERS: RM70**



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# SYNOPSIS

This technical talk explores the intricate domain of "Design, Modeling, and Control of Underwater Manipulators." Delving into the challenges of underwater environments, the talk addresses the unique considerations in crafting efficient and reliable manipulators for subaquatic applications. The talk outlines the general design methodologies employed, emphasizing the integration of robust materials and technologies capable of withstanding harsh underwater conditions. Through advanced modeling techniques, the discussion highlights the simulation and analysis processes crucial for optimizing manipulator performance in diverse aquatic scenarios. Additionally, the presentation delves into control strategies tailored for underwater settings, ensuring precise and adaptive manipulation capabilities. Attendees will gain insights into the cutting-edge developments driving the evolution of underwater manipulator systems, fostering a deeper understanding of the complexities involved in their design, modeling, and control.

## OBJECTIVE

- **Highlight the Importance of Underwater Manipulators:**  
Emphasize the critical role of underwater manipulators in subaquatic applications, showcasing their significance for tasks such as maintenance, exploration, and research in challenging underwater environments.
- **Explain Design Principles and Materials:**  
Explore and explain the design methodologies employed in crafting efficient and reliable underwater manipulators. Discuss the integration of robust materials and technologies tailored to withstand harsh underwater conditions.
- **Discuss Advanced Modeling and Control Strategies:**  
Present advanced modeling techniques used in simulating and analyzing underwater manipulators. Delve into control strategies specifically adapted for underwater settings, ensuring precise and adaptive manipulation capabilities in diverse aquatic scenarios.

## SPEAKER'S PROFILE

Mohd Rizal Arshad is a professor at the School of Electrical and Electronic Engineering at Universiti Sains Malaysia, where he specializes in ocean robotics technology. He received his B.Eng. in Medical Electronics and Instrumentation from the University of Liverpool in 1994, and his MSc. in Electronic Control Engineering from the University of Salford in 1995. He earned his PhD in Electronic Engineering in 1999 with a specialization in underwater imaging using diffused laser source. Prof Rizal has supervised many postgraduate students and has published extensively in local and international publications. He is a professional engineer with the Board of Engineer Malaysia and a professional technologist with the Malaysian Board of Technologist. He is also a Chartered Marine Engineer (C.MarEng) with the Institute of Marine Engineering, Science and Technology, a senior member of the IEEE, and a Chartered Engineer (C.Eng) with the Engineering Council in the UK. He is recognized as a pioneer in underwater system technology and robotics research in Malaysia.