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DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT

DEPARTMENT OF INDUSTRIAL ENGINEERING

INVITATION

**12 May**

12:00 to 14:00

# KEYNOTE TALK

## Resilient Energy and Transportation Infrastructures for Ocean and Waterfront Applications


SPEAKER

**Dr. Hossam A. Gabbar**

PEng, Distinguished Lecturer IEEE NPSS, Director of Smart Energy Systems Lab, Ontario Tech University, Canada


### BIO

Dr. Gabbar is a full Professor in the Faculty of Energy Systems and Nuclear Science, and cross appointed in the Faculty of Engineering and Applied Science, at Ontario Tech University (UOIT), where he has established the Energy Safety and Control Lab (ESCL), Smart Energy Systems Lab, and Advanced Plasma Engineering Lab. He is the recipient of the Senior Research Excellence Aware for 2016, UOIT. He is recognized among the top 2% of worldwide scientists with high citation in the area of energy. He is a Distinguished Lecturer of IEEE NPSS. He is leading national and international research in the areas of smart energy grids, energy safety and control systems, and waste to energy using advanced plasma technologies. Dr. Gabbar obtained his B.Sc. degree in 1988 with first class of honor from the Faculty of Engineering, Alexandria University (Egypt). In 2001, he obtained his Ph.D. degree from Okayama University (Japan). From 2001 till 2004, he joined Tokyo Institute of Technology (Japan), as a research associate. From 2004 till 2008, he joined Okayama University (Japan) as an Associate Professor, in the Division of Industrial Innovation Sciences. From 2007 till 2008, he was a Visiting Professor at the University of Toronto. He also worked as process control, safety, and automation specialist in energy and oil & gas industries. Dr. Gabbar has more than 230 publications, including patents, books / chapters, journal, and conference papers.

### ABSTRACT


This talk will present research planning, design and control strategies of hybrid energy systems for waterfront infrastructures and maritime transportation electrification. The talk will include energy-water-transportation infrastructures, autonomous and electric maritime, and possible design and operation options towards smart cities and communities. The talk will cover resilient interconnected micro energy grids for waterfront infrastructures and fast charging systems for both waterfront communities and maritime systems. Autonomous marine systems and illustrated with possible designs and deployment strategies. Small scale waste-to-energy technologies will also be discussed, and their integration and deployment strategies will be explained in waterfront communities and maritime systems. Design, planning and operation strategies of hybrid energy systems will be discussed and their possible implementations in waterfront infrastructures and marine transportation to ensure highest overall performance, reduced risks, and minimum gaps with user requirements and demands. The talk will include discussions on the design of hybrid energy systems for emergencies and different weather conditions. The talk will discuss possible technologies and their deployment and integration, and key innovations for industrial collaborations.


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