

## Preface

ICME 2012 is the third International Conference on Mechanical and Manufacturing Engineering organized by Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn Malaysia (UTHM). The first and second ICME were successfully held in Johor Bharu and Kuala Lumpur, respectively and had attracted prestigious researchers all over the world. This conference would be the main platform for researchers, academicians, technologists, policy makers, industrialists and students to share, discuss and highlight their research findings particularly works that related to research and technological developments and knowledge transfers despite of sustaining green technologies. The conference scientific committee received more than 150 papers from 10 countries all over the world. All papers were peer-reviewed in a double-blind process and most of the papers were accepted for presentations in 12 different selected areas and published in SCOPUS indexed journal. We wish to thank all authors who contributed their papers to the conference and all reviewers for their efforts to review the papers as well as the sponsors. We would also like to thank the members of the ICME2012, Organizing Committee and the International Advisory Committee for their efforts in making the conference a success. Thank you very much indeed.

## **FOREWORD FROM VICE CHANCELLOR UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

Salam 1Malaysia and sincere greetings to all.

First and foremost, I would like to congratulate the Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn Malaysia (UTHM) for successfully organizing this 3<sup>rd</sup> International Conference on Mechanical and Manufacturing Engineering (ICME 2012). It is my great pleasure to welcome all distinguished guests, invited speakers and participants to the 3<sup>rd</sup> International Conference on Mechanical and Manufacturing Engineering (ICME 2012). The theme for ICME 2012 is Sustainable Engineering towards Green Technology. It is an important and interesting theme and UTHM has a forefront role in discussing the latest outcomes in the related area. Surely in this era, the innovative and sustainable based technology has attracted much concern globally and it has a very huge potential for further exploration. I believe you will benefit in many ways in this conference either as speakers or as participants. I also hope this conference is a good venue to build research network in many fields and open for great opportunity to cooperate in the future. Finally, I wish all of you good luck and all the best at this conference. Thank you.

*“WITH WISDOM WE EXPLORE”*

**Prof. Dato' Dr. Mohd. Noh bin Dalimin**  
Vice Chancellor UTHM

## **FOREWORD FROM DEAN OF FACULTY OF MECHANICAL & MANUFACTURING ENGINEERING**

Firstly, on behalf of the organizing committee, I would like to convey my deepest thanks to all, the participants and sponsors of the conference. I am also would like to welcome our guest to the 3<sup>rd</sup> International Conference on Mechanical and Manufacturing Engineering (ICME2012). ICME was first held in 2008 and it is ideal platform for all academician, researchers and postgraduates students to share current ideas and findings in this conference. Universiti Tun Hussein Onn Malaysia aspires to be a global university and we have done much effort towards achieving this ambition including this conference. The theme of this conference is Sustainable Engineering towards Green Technology is interesting and timely. I would like to encourage young researchers to actively take part in discussions of their research interest and consults relevant experts and professors in the conference. The process of learning is always challenging and fascinating and conferences always gather experts and also promote networking as well as to expose new findings and ideas. It should be shared and reviewed with rigor to ensure full benefits are acquired. Innovation and sustainable technology has always been the forefront of research in the current era. Finally, I would like to express my deep gratitude and thanks to all members of the organizing committee, keynote speakers, paper presenters, contributors and other involved in making this conference a success. My appreciation and thanks also to the support of the University especially the Dato' Vice Chancellor. I wish you all the best and have an enjoyable and fruitful conference.

**Assoc. Prof. Dr. Yusri bin Hj. Yusof**  
Dean of Faculty of Mechanical and Manufacturing Engineering

## **FOREWORD FROM CHAIRMAN OF ICME2012**

I would like to extend a warm welcome to all delegates attending the 3<sup>rd</sup> International Conference on Mechanical and Manufacturing Engineering 2012 (ICME2012) organized by Faculty of Mechanical and Manufacturing Engineering (FKMP), Universiti Tun Hussein Onn Malaysia (UTHM). The main goal of ICME2012 is to provide a common platform for knowledge interchange and sharing in terms of current research and development between researchers, academician, industries and practitioners in mechanical and manufacturing engineering areas. Academic institutions need to place increased emphasis on transferring and commercializing knowledge as opposed to solely generating and disseminating knowledge within the academic community itself and ICME2012 will be of great advantage in providing an ideal platform in addressing these issues. I hope all delegates will participate actively in the conference and share their scope of interest within the mechanical and manufacturing engineering areas. It is also hope that during this conference, delegates will take the opportunity to renew old friendship and meet new acquaintances as well as explore the campus of UTHM. My gratitude and best wishes to the entire team who have made the conference a success. Thank you.

**Assoc. Prof. Dr. Ahmad Jais Alimin**  
Chairman of ICME2012

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## KEYNOTE SPEAKER 1



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Professor Mustafizur Rahman graduated from Bangladesh University of Engineering & Technology in 1969. He received his Dr. Eng. degree from Tokyo Institute of Technology in 1979. He has been with the Department of Mechanical Engineering at the National University of Singapore since 1982. He has received William Jonson Gold Medal for Life Time Achievement in Advancement of Material and Processing Technology in 2009, Outstanding Achievement Awards from the Singapore Institute of Engineers and the Japan Society of Mechanical Engineers in 2003 and 2005 respectively. He has authored more than 400 journal and conference papers. Currently, he is also a director of a NUS spin-off company, Mikrotools Pte Ltd. ([www.mikrotools.com](http://www.mikrotools.com)) which produces machine tools for micro and nano machining.

### QUALIFICATIONS

Dr. Eng, MCIRP, MJSPE, MIEE, MSME, MASME, MIES

### RESEARCH INTERESTS

Miniature machine tools for micro/nano machining, Ultra precision/high-speed machining of MEMS, dies and aero-space materials, Nano Finishing of Hard Materials Using ELID Grinding

### PUBLICATIONS

Published 240 papers of which 125 are in international refereed journals, 4 in local refereed journals, 11 are in non-refereed journals and 100 are in conferences. Co-authored a book and written chapters in two books.

## KEYNOTE SPEAKER 2



Ir Dr Hj ABAS Ab Wahab  
Professor & Head,  
Department of Aeronautical Engineering,  
Faculty of Mechanical & Manufacturing  
Engineering, Universiti Tun Hussein Onn  
Malaysia (UTHM), 86400 Parit Raja,  
Batu Pahat, Johor D.T, Malaysia.

### QUALIFICATION

PhD(Aerodynamics) – Salford U, UK; MSc (Aero) – West Virginia University, USA; BSc(Hons)(Mech) - Strathclyde University, UK; Dipl (Mech) – I.T.K., Malaysia.

### EXPERIENCES

Academic (38 Years), Research (23 Years), Management (12 Years), Postgraduate Supervision (6 PhD & 15 Master Students), Publications (3 Books, 70 Papers), Invited Papers (9), Research Grant (12), Copyright (3), Patent (2 Pending), Postgraduate Teaching (Advance Fluid Dynamics, Compressible Fluid Flow, Combustion Engineering, Aerodynamics and Helicopter Technology).

### SPECIALISATIONS

Fixed and Rotary Wing Aircraft Aerodynamics and Propulsion; Wind Tunnel Testing.

### RESEARCH INTERESTS:

Vertical-Short Takeoff and Landing (VSTOL) Aircraft And Helicopter (Aerodynamics, Stability and Propulsion); UAV; Land Vehicle Aerodynamics; Wind Response On Tall Buildings and Long Bridges; Wind Energy.

### **KEYNOTE SPEAKER 3**



Prof. Dato' Dr. Mohd Noh Bin Dalimin  
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Professor Dato' Mohd Noh Dalimin is a Professor of Physics (Energy and Materials) and a Vice-Chancellor of Universiti Tun Hussein Onn Malaysia (UTHM), a public university in Malaysia since October, 2008. Prior to that, he was the Vice-Chancellor of University Malaysia Sabah (UMS) between year 2005 and 2008. Mohd Noh is a graduate in Physics from Gadjah Mada University, Indonesia, a Master of Science in Solid State Physics from University of London, and has a PhD in experimental Solid State Physics, from Imperial College London. He has written over 50 articles and papers in his field, and supervised PhD and MSc students when he was in Universiti Kebangsaan Malaysia (UKM), Universiti Malaysia Sabah (UMS) and Universiti Tun Hussein Onn Malaysia (UTHM).

#### **QUALIFICATIONS**

BSc (Gadjah Mada), MSc PhD (London), DIC (Imperial College), DSDK, PGDK, ASDK,

#### **RESEARCH INTERESTS**

His research interest is in experimental solid state physics, materials, renewable energy, environmental sciences, and community engagement.

## ACKNOWLEDGEMENTS



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