

THE 12th INTERNATIONAL CONFERENCE On QiR (QUALITY in RESEARCH)

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WELCOME FROM THE RECTOR OF UNIVERSITAS INDONESIA



I am honoured to have the opportunity to officially welcome you to the 12th International Conference on QIR (Quality in Research) 2011. As we are all aware that the impact of globalization has resulted in a very competitive business environment; a condition that makes the fulfillment of the needs of customer/clients' ever-sophisticated project, product, or service most challenging. Without any doubt, a sustainable design and technology is the key factors in assisting our industries to enhance their contributions to the future development of humanity. Therefore, it is our hope that this conference will be able to provide an international forum for exchanging knowledge and research expertise as well as creating a prospective collaboration and networking on various fields of sustainable engineering and architecture.

In order to achieve business objectives and benefits, engineering products or projects require various resources, skills, and technology. Accordingly, we need an application of knowledge, tools, and techniques necessary to develop sustainable products or projects, which are environmentally friendly, produced through efficient processes, and adapted to local conditions. And this may be achieved by eco-technology. Eco-technology is a technology that will give consumers what they want; lower cost, convenience, save money and deliver what people everywhere needs: less waste, less pollution, and green environment. Eco-technology practices can facilitate to conserve and restore the environment through the integration of engineering and ecological principles. However, eco-technology requires multidisciplinary synthesis of knowledge and skills; and the development and application of this technology in the sector of industry and services is therefore a crucial requirement for sustainable development process. For this reason, we urgently need new technologies and practical applications to be further developed based on the current knowledge.

Accordingly, I hope this conference can be a kick-off for the strengthened action and partnerships on creating a platform for us; national and international thinkers, academics, government officials, business executives and practitioners, to present and discuss the pivotal role of engineers in creating sustainable development.

I would like to thank the Faculty of Engineering of Universitas Indonesia for organizing this meaningful and timely event, and supporting organizations for their participation and contributions. I am sure that you will all find this conference stimulating and rewarding and with this, I wish you all a fruitful conference.

Prof. Dr. der. Soz. Gumilar Rusliwa Somantri
Rector
Universitas Indonesia

WELCOME FROM THE DEAN OF FACULTY OF ENGINEERING UNIVERSITAS INDONESIA



On behalf of the Faculty of Engineering, University of Indonesia, it is my greatest pleasure to extend our warmest welcome to all of you to the 12th International Conference on QiR (Quality in Research) 2011. As we know that this conference is conducted to cover a wide range of sustainable design and technology issues, I hope this two days-conference will be spent in interesting discussions and exchange of ideas. I also hope that this conference will be able to provide a state-of-the-art information and knowledge in this challenging world of sustainable design and technology. The growing success of our institutions and expertise should urge us to develop our competitive capabilities, especially when we face certain challenges which should be overcome with hard work, cooperation, and working together hand in hand. We will work together to develop a common path and develop collaboration opportunities for future action and research on multi-disciplinary engineering areas for quality of life and humanity.

I am delighted that you have accepted our invitation to this conference in such a large numbers as indicated and that we will have many international speakers and papers from various countries to be presented and discussed in these two days. We will explore various issues on sustainable development and we must widen the scope of sustainability from a product-, system-, or an individual building-scale to the whole community-scale. At the same time, we have to widen the focus from ecological aspects to social and economic aspects. This means that environmental solutions should always be considered from the aspects of human health and well-being, safety, and economic point of view. This conference provides an excellent forum for engineering professionals, business executives, industry practitioners, and academicians to exchange ideas and to share their experience, knowledge and expertise to each other.

I would like to thank our sponsors, supported bodies, and various contributors for their generous support of this conference. I would also like to thank our distinguished speakers for agreeing to share their insights with us. To our friends from overseas and other provinces of Indonesia, I would also like to extend a warm welcome to you and wish you an enjoyable stay in Bali. Last but not least, I would invite you to join me in thanking the committed staff that made this conference happen and to make it success.

I wish us much success in the deliberations, discussions, and exchange of ideas which we will have within this conference and I wish you a very pleasant and enjoyable stay here in Bali.

Prof. Dr. Ir. Bambang Sugiarto, M.Eng
Dean Faculty of Engineering
Universitas Indonesia

WELCOME FROM THE QIR 2011 ORGANIZING COMMITTEE

On behalf of the Organizing Committee, it is my greatest pleasure to extend our warmest welcome to all of you to the 12th International Conference on QIR (Quality in Research) 2011. The selected theme for this year's conference is "Integrated Design in Urban Eco-Technology for Quality of Life and Humanity". With this theme, the conference focuses on the scientific analysis and design of the key factors explaining the success applications of integrated design in urban eco-technology, their market perspectives, and their contributions to the existing and future development of humanity. In line with this theme, it is our utmost pleasure to hold the QIR 2011 in conjunction with the 2nd International Conference on Saving Energy in Refrigeration and Air Conditioning (ICSERA 2011).



With its continuous presence for 12 years, QIR has become an icon for Faculty of Engineering Universitas Indonesia in serving the objectives to provide engineering excellence for both national and international in all aspects of engineering, design, and architecture. For the first time, the QIR 2011 is held in a famous beautiful island of Indonesi - Bali. The QIR 2011 is supported by Universitas Udayana, in the spirit of strengthening of cooperation and mutual growth to be world class institution. I am delighted to inform you that we have such a large number of participants today, as indicated, that we will have 21 invited speaker presentation and more than 520 papers from more than 20 countries to be presented and discussed during these two days-conference. We are fortunate to have a lot of good quality papers belong to:

32 papers on ICSERA

39 papers on Chemical Engineering

115 papers on Electrical Engineering

37 papers on Mechanical and Naval Architecture Engineering

101 papers on Materials Engineering

54 papers on Architecture & Planning

75 papers on Industrial Engineering

72 papers on Civil Engineering

I would like to thank all contributors, speakers and participants for your generous support to this conference. It is my pleasant duty to thank all the members of Organizing Committee and the International Board of Reviewers for their advices and help. We are grateful to all Sponsors, Supporters, Exhibitors, Partner Universities and Professional Associations, for their spontaneous response and encouragement through committing funds and extending help in kind. I would like to sincerely thank the Rector of Universitas Indonesia and the Dean of Faculty of Engineering, for fully supporting the Committee and providing all supports to make this conference happen and to make it a success.

I wish you a very pleasant stay here in Bali; and finally, let me wish all of you a meaningful and fruitful conference. Thank you and we hope to see you again at the QIR 2013.

Prof. Dr. Ir. Bondan T. Sofyan, M.Si.
Chairman of QIR 2011 Organizing Committee

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